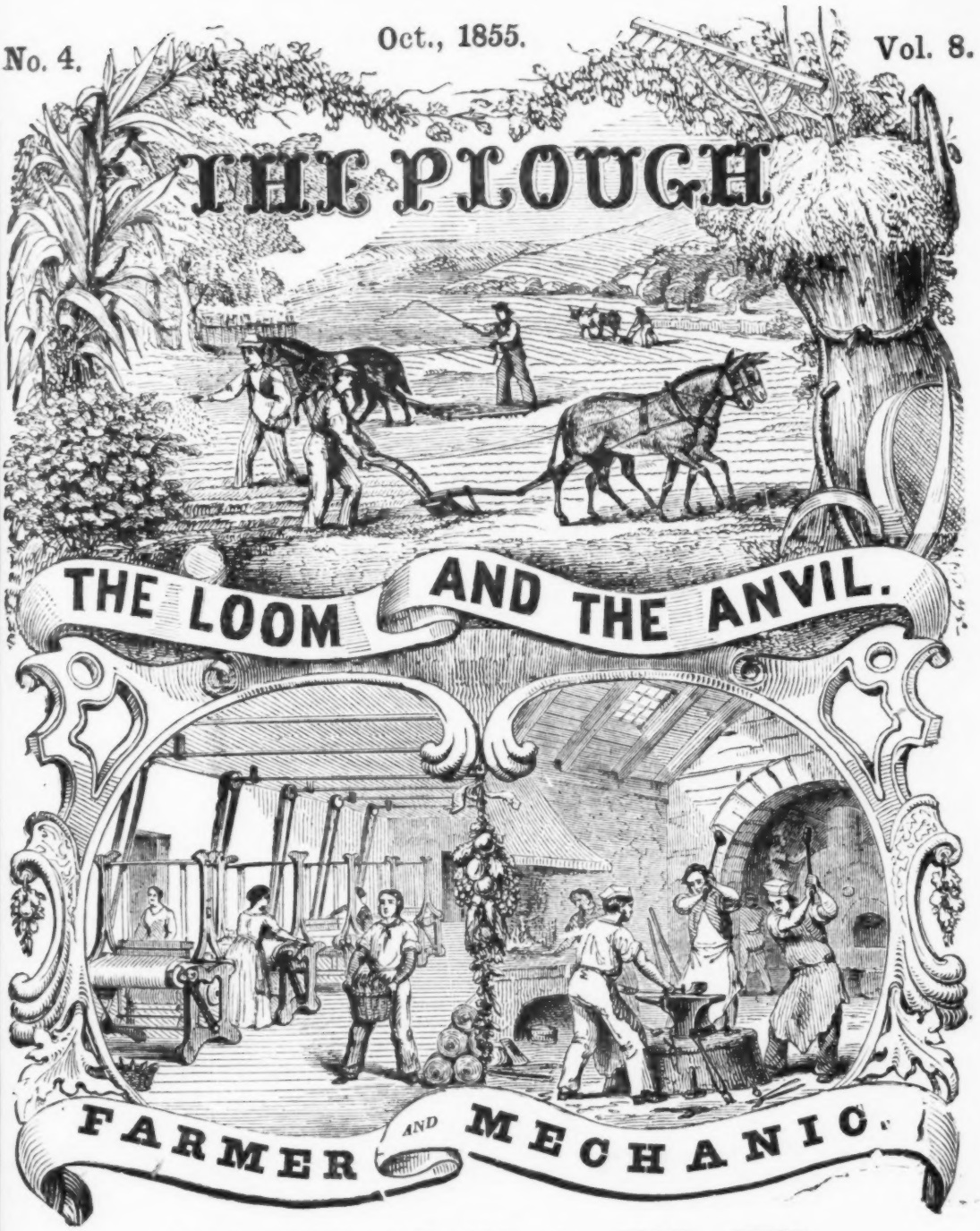
No. 4. Oct., 1855. Vol. 8.



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Capt. GEO. G. BENJAMINS.

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The Plough, the Loom, and the Anvil.

Vol. VIII. OCTOBER, 1855. No. 4.

THE CONDITION OF LABOR—TRUE PROSPERITY.

We think the time has come for the mass of the people to review the past and examine their present condition, and to know whether they are receiving and have received that return for their labor to which they are entitled. It may be found that the language of that true poet, Hood, applied to a single form and department of labor, is applicable, in a degree, to a much larger proportion of the people than has been generally supposed.

"O men with sisters dear,
O men with mothers and wives!
It is not linen you are wearing out,
But human creatures' lives!
Stitch! stitch! stitch!
In poverty, hunger and dirt,
Sewing at once, with a double thread,
A shroud as well as a shirt.
* * * * *
O God! that bread should be so dear,
And flesh and blood so cheap!

Work! work! work!
My labor never flags;
And what are its wages?—a bed of straw,
A crust of bread and rags—
That shattered roof, and this naked floor—
A table, a broken chair—
And a wall so blank—my shadow I thank
For sometimes falling there!"

Intelligent industry ought to thrive, and in every department of useful labor a livelihood ought always to be secure to the industrious worker. He should not be borne down into the dust, either by fraud or by force. That law of trade, belonging to a code now quite current, "buy cheap," ought not to override all justice and all mercy, and make paupers or beggars of those by whose labor the rich become richer, and the strong stronger. Nor is it enough to show, in justification of such a grinding process, that it is necessary to enable the employer to compete successfully with some other, who lives on fraud, and whose prosperity grows out of the destruction of his neighbors, as really as the tree of the forest thrives on the decomposition of the dead animal at its root.

If any one thing can show the general prosperity and well-being of a

community, we think it is the fact that all useful labor is remunerative. This does not require that every form of labor should receive a large sum in wages, but it does require that the amount received should enable the laborer to provide well for himself. He expends his energies, his only capital, for the good of his employer. He is not fully compensated unless he receives at least what will restore to him what he has expended. In any condition of things short of this, he is reducing his capital, and in the code commercial, this is the unpardonable sin. Nor does the laborer receive this full remuneration when he merely gets wages that will buy all he wants to eat, drink, and wear. That laborer is a man. Progress is as much a part of his creed as it is that of the scholar, though the progress desired is different in kind and in degree. This must be his creed *because* he is a man, and no man is in the best condition to do well for himself or for others who does not see something before him, and within his reach, better than the present. He knows that there will be "rainy days." He knows that sickness may lay him low and hold him helpless. He has loved ones, too, whom he cherishes as his own eyes, to whom he would do good. He is not then satisfied, although when night comes he finds that his food for the day has been paid for, and a shilling is left for his lodging.

We may take another view of this doctrine, which may set it in a clear light. A young man commencing for himself says, "Here I am, about to begin a series of labors, which shall, perhaps, continue for many years, but, at last, it will give me a comfortable home for myself and mine in our old age. Thirty years even may be past ere I accomplish this; but yet so much a year laid up will secure this result." But he labors ten years without gaining anything, and now only twenty remain. Hence the annual saving must thereafter be greater than he first proposed, or his prospects will be materially lessened, and his hopes disappointed. He is not now in so good a condition as he was when he commenced for himself. His circumstances have constantly been growing worse and worse. He is not ready to surrender the one aim of his life. He has not thought of despair. But he sings, in the words of the same poet:

"No parish money or loaf,
No pauper badges for me,
A son of the soil, by right of toil,
Entitled to my fee.
No alms I ask; give me my task—
Here are the arm and leg,
The strength, the sinews of a man,
To work, and not to beg."

Without spending further time or space in this direction, we repeat that it is a full remuneration for all his expenditures that he may rightfully claim, and in this calculation, be it more or less, within reasonable limits, this desire for progress or an improved condition comes in as a legitimate item; and, if disappointed in this, the laborer is so far deteriorated, positively incapacitated. It would be impossible to lay down any particular rule for measuring or limiting the amount of this obligation. But, whatever it may be, it is a legitimate item in fixing the price of a day's work. The interest of the employer demands it as really as the interest of the employed.

Whatever standard may be adopted as a just *measure* of recompense for services rendered, no difference of opinion can exist on the absolute proposition, that the laborer is worthy of a full remuneration for whatever is actually expended for his employer; and no community can be said to be prosperous where labor does not thus receive its full reward.

A great deal of confusion exists in the minds of thousands upon the real question at issue on this subject. If a certain number of the community grow rich, if the wealth or power of certain sects or cliques, or particular interests, increase, the idea prevails that the community is necessarily prosperous. Nothing can be more erroneous. Suppose a house consists of ten partners, each having his distinct branch of trade, and that five of these lose as much as the other five gain. Is that house prosperous? No man thinks so. Then why should we not judge the same of a community?

We can well understand why, in past times, such a mistake should be made. There have been times when the interests of the masses were not regarded. The lords of the manor, the barons, and a few other titled men, constituted the nation. No man was in any sense a citizen who was not the owner of real estate. "The right of peerage was originally territorial," says Blackstone, "that is, annexed to lands, honors, castles, manors, and the like, the proprietors and possessors of which were allowed to be peers of the realm. When the land was alienated the dignity passed with it as an appendant." Even in the early history of this country similar views were held. It is within the recollection of many, not among our "oldest inhabitants," when the ownership of real estate was necessary to constitute a voter. Nor is it longer ago than the famous Dorr rebellion in Rhode Island that this was one of the doctrines which became a matter of contention even at the point of the bayonet. The views generally entertained on this subject even now partake very extensively of the coloring of those past epochs.

When any such limitation of the right of citizen-hip is established, it may, *perhaps*, be true, that the welfare of the masses is not involved in the welfare of the community. But even then we do not see that the state of things would be essentially changed in this respect. The general may be regarded as the only person of consequence among all those who are about him. But if his army are weak from starvation, where will he obtain his laurels? So the master may appropriate to himself all the dignities and emoluments, and even ignore the existences which minister to him, but if they are diseased and disabled what becomes of him? It is quite too late in the day to urge any such considerations as these to which we have referred upon the public mind. The community is made up of ALL its parts, whether they are held in honor or in dishonor, whether allowed more or less of civil and social privilege, and that community does not prosper where the masses are not in good condition—well educated for the duties required of them—happy and contended.

But we must not extend these remarks. We appreciate the importance of every block in the structure of society whether below or above the surface, and are quite ready fairly to investigate the question, Is our community in a prosperous condition? When compared with many others it undoubtedly is prosperous. But when compared with our own ideas of what we should be and may be, when we compare our practice with our theory, we must pause ere we answer either way, yes or no.

What are the facts connected with this inquiry? Vast estates are made, and made rapidly. We can point to those who have accumulated a million in less than thirty years. But did they *make* it, or steal it? Was it the result of honorable, legitimate traffic, or was it the product only of trickery, deceit, fraud, falsehood? Was it drawn out from the hard and honest earnings of others, who were deluded by the false tales that were told them? If this is the process, would any amount of wealth thus acquired by the few make a prosperous community, or furnish any

evidence of its good condition? This, no doubt, does describe truthfully the process by which many great estates have been rapidly acquired. Our cities abound in them, and they are met with all over the country.

Other large estates are rapidly accumulated by foreign trade. Among the ignorant natives of China and the Indies, the "shrewd" Caucasian sends his commercial agent, and, partly by cheating in weights and measures, partly by deceits of other sorts, the rich products of those countries are obtained for a song, and the house rapidly becomes rich. It employs twenty or fifty men in our own midst, to handle, sell, and manage these rich cargoes, and a great noise is made about "commercial enterprise," and the progress of our country, and the very science of Permutation is exhausted in conjuring up numerous forms of trumpeting this "progress" over the continent, and even across the ocean. But is it not obvious that all this is humbug and fraud? What has it done for the general prosperity of the community? Perhaps this same great house beat down the ship-builder that furnished the ships which brought over these rich cargoes to almost the cost of the timber, so that he had no resource but to do the same thing with the carpenter, and blacksmith, and lumberer, while the rigger, and sailor, and stevidore, and porter, as well as the clerks, book-keepers, and salesmen can find employment in that house only at the lowest possible wages. Is there here any evidence of a prosperous community?

But let us take a tour into the country. Rich land extends all through our valleys, and our hills wave with rich harvests, herds and flocks abound, and the farms, barns, and granaries are running over. "Surely here is prosperity," we are told, and we admit that no class in the world is so independent of the fluctuations which abound in all communities as this. But why are his barns so full and his granaries so loaded? Because he can find no remunerative market. Because such a system of speculation pervades all the places of business, that the producer must sell at almost ruinous rates or keep his products for home consumption. This, often and generally, he cannot do, and therefore he must sell them to the speculator, who, without a particle of labor bestowed upon them, without doing a single thing to improve their condition, has such a control of the retail market, that he demands an exorbitant price for the daily necessaries of life, and, in a few years, builds a splendid house in a fashionable street, and retires from active business to loan his money at two or three per cent. a month, and thus keeps the ball in motion till it is absolutely unwieldy. Is there here any evidence of a prosperous community?

We might thus run through all the forms of trade, and we should come to the same result, nor shall we get any satisfactory answer to the inquiry we have made, till we are so happy as to find all these classes well compensated for their labor, and labor always to be had. The farmer then toils cheerfully, and sings a song of praise each evening with a merry heart. The mechanic sharpens his tools and plies them with an energy that whets his appetite while he enjoys his liberal repast; and a hard day's work, well compensated and a certainty of employment for to-morrow, secures for him sweet sleep in the midst of a happy family. And so this ball rolls on. All are well provided for, all are prosperous and happy. Grim want drives none into vice. The people become honest, and hate every form of crime. Even their selfishness teaches them such lessons, for now they have that which needs the protection of law, and they crave the peace and security which good morals alone can insure.

Is there any such talisman as this among all the regulations of the police, and the penal enactments of legislatures? Surely there is none.

And to what result are we brought as to the answer, Yes or no? Are we, as a community, in a prosperous condition? There has been, by general consent, one of the severest seasons our country has ever known. Its severity consisted in the fact that labor could find no market, and could earn no wages. Many a heart still aches under the bare recollection of its pangs. WHAT PRODUCED THAT STATE OF THINGS? Who will inform us? Who will investigate it? Leave not the inquiry to the politicians, IT IS FOR THE LABORER. Politicians are the most corrupt crew living on this footstool. There is not a band of pickpockets on earth, that can so easily be led to betray the interests of their associates as they. STATESMEN are NOBLEMEN. Men who take office for the good of their country and labor for its good, deserve the highest of rewards. Men who seek office as they would buy goods at an auction, as a source of profit and for personal advantage, and who value it in the exact ratio of its emoluments, belong to a different class, and though some of these are truly honest, and many others as honest as is compatible with security of place, too many of them become politicians by trade, and they do trade in their *policy* just as they would in horses, to the best bidder. Trust not this discussion in such hands. Let the educated, the intelligent laborer, study the relations of trade, the antecedents of "commercial crises," and of stagnation in business.

We have said this is the duty and interest of the laborer. This is a large class. It includes all but idle drones, who are generally too inefficient to exert any influence beyond their own family circles. The laborer, then, has it in his power to adopt such measures as he may think best. Will he take it in hand, and examine it IN THE LIGHT OF FACTS? We will try to do our part. Let every reader give us his assistance.

METEOROLOGY FOR THE FARMERS.

WE give extracts from the interesting letter of Lieut. Maury, of the U. S. Navy, to the Editor of the *American Farmer*, on the subject of Meteorology. It is a matter of great importance to the Agricultural interest of the country; and it is hoped an appropriation from Congress will be made, to carry out the views of Lieut. Maury.—ED.

"OBSERVATORY, WASHINGTON, June 18, 1855.

"*To the Editors of the American Farmer:*

"GENTLEMEN:—I am much obliged to you for your favor of the 9th inst. You are right; I did not intend to confine the appeal to the farmers of any 'pent-up Utica.' I intended to make it as broad as the land.

"You ask for the plan of coöperation. It is very simple, and calls on the farmers for little more than good-will.

"I first want authority to take the preliminary steps, and to confer with other meteorologists and men of science at home and abroad, with the view of establishing a uniform system of meteorological observations for the land, as we have done for the sea.

"If any officer of the Government were authorized to say to the farmers, as I have to the sailors, Here is the form of a meteorological journal; it

shows you the observations that are wanted, the hours at which they are to be made; tells what instruments are required, and how they are to be used: take it, furnish the Government with observations, and in return the Government will discuss them, and give you a copy of the results when published—he would have at once, and without cost, a volunteer corps of observers that would furnish him all the data requisite for a complete study of both agricultural and sanitary meteorology.

"Such an offer to the sailors has enlisted a corps of observers for the sea, by whose coöperation results the most important and valuable, and as unexpected as valuable, have been obtained.

"Could not at least one farmer be found on the average for every county in every State that would gladly undertake the observations? I don't think there would be any difficulty on that score. Sailors have been found to do as much for every part of the sea—on the average ten observers for a State would be sufficient.

"Now if we could get the English Government, and the French Government, and the Russian Government, and the other Christian States, both of the Old World and the New, to do the same by their farmers, we shall have the whole surface of our planet covered with meteorological observers, acting in concert, and eliciting from nature, under all varieties of climate and circumstances, answer to the same questions, and that, too, at no other expense than what each Government should choose to incur for the discussion and publication of the observations that are made by its own citizens or subjects.

"What is wanted in a system of observations like this is uniformity. Hence, coöperation—an agreement to observe the same things at the same times—is essential to anything like success. We want not only corresponding observations as to the time, but we want them made with instruments that are alike, or that can be compared; and then we may expect to find out something certain and valuable, concerning the movements of this grand and beautiful machine called the atmosphere.

"If you ask me to state beforehand what particular discoveries or special results of value I expect to make, I answer, If I could tell, I would not ask your assistance to make them. The fields meteorological are large—there are many of them, and all that I do know about them is, that there is in them *mighty* harvests of many sorts.

"I make the appeal to the farming interest especially, because that is the great interest to be subserved by the scheme; and if the farmers do not really care enough about it to use their influence with their Representatives in Congress to procure the very trifling appropriation that is required to get it under way, I do not see why I should give myself any further trouble in the matter.

"Will you not bring the subject in some tangible shape before the Agricultural Societies of the country? A simple memorial from them to Congress would not fail to procure all the legislative aid necessary.

"Some of the leading scientific men of Europe are ready to join us in such a plan; and with authority to confer with them *officially* as to details, I have no doubt that most of the governments of the world would undertake, each for itself, and within its own territories, a corresponding series of observations, so that we should then be able to study the movements of this great atmospherical machinery of our planet as a whole, and not as hitherto in isolated detached parts.

Respectfully, etc.,

"M. F. Maury, Lt. U. S. N."

PROBLEMS AND TABLES OF WEIGHTS AND MEASURES.

One pound Avoirdupois = 1.21527 pounds Troy.
144 pounds " = 175 " "
Avoirdupois pounds × 1.21527 = Troy pounds.
" ounces × .9115 = " ounces.
Troy pounds × .823 = Avoirdupois pounds.
" ounces × 1.1 = " ounces.
" grains × .03657 = " drachms.
1 gramme (French dec. system) = 15.4340 Troy grains.
1 pound Avoirdupois = 27.7015 cubic inches of distilled water.
1 gallon of distilled water weighs 10 lb Avoirdupois.
A cubic foot of distilled water weighs 62.5 lb Avoirdupois.
A wine gallon contains 231 cubic inches.
An ale " " 282 " "
An English Imperial ale gallon, dry measure, = 277.274 cubic inches.
A pint English Imp., wine measure, = 34.659 "
A pint " dry measure, = 34.659 "
A gallon " " = 277.274 "
A bushel " " = 1.2837 feet.

FRENCH DECIMAL SYSTEM.

1 metre is 39.371 inches.

The increasing series consists of the Millimetre, Decimetre, Metre, Decametre, = .03937 inches. Centimetre, Hectometre, Kilometre, and Myriametre, the last = 10936.389 yards.

1 Gramme equals 15.4340 Troy grains.

The entire series, increasing, consists of the Millegramme, Centigramme, Decigramme, Gramme, Decagramme, Hectogramme, Kilogramme, Myriagramme.

To Find the Content of a Cylinder (Well, Cistern, &c.,) in U. States Gallons.—Multiply the square of the diameter in feet, by the length of the cylinder in feet, and this product by 5.874; or

Multiply the square of the diameter in inches by the length in feet, and this product by 0.408.

For example. How many gallons in a well 22½ feet deep and 3½ feet in diameter?

$$3.5^2 \times 22.5 \times 5.874 = 1619.02 \text{ galls.}$$

Or, 3½ feet = 42 inches, and $42^2 \times 22.5 \times .034 = 1619.55$ galls.

To Find the Force of Wind, its Velocity being Given.—Divide the velocity per second by 10, and multiply the square of the quotient by 0.229. The product will be the force exerted upon a square foot in pounds.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SHORT AND USEFUL RULE.

Solid feet multiplied by $\frac{4}{5}\frac{5}{6}$ gives bushels of 2150$\frac{2}{5}$* inches each, or by $\frac{2}{3}\frac{5}{2}$ gives bushels of 2211.84 inches each.

To find the number of bushels in a square-cornered box or pile, multiply the length, breadth, and depth in feet together, and the product will be the number of solid feet, which, being multiplied by either of the above-mentioned fractions, ($\frac{4}{5}\frac{5}{6}$ or $\frac{2}{3}\frac{5}{2}$,) will give the number of bushels.

Bentonville, Ind. Merchant Kelly.

* "Standard bushel."—Ed.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COUNTRY HOUSES.

Mr. Editor :—One of the most common features in the houses of the country is the want of taste, visible in all sections of the country. These dwellings are mostly the homes of the farmer, and surprising it is to see how little time is spent in improving them and making them look as a farmer's home should. Most of them were placed close to the highway with a door-yard perhaps in front, of twelve by twenty feet, fenced off from each corner of the house and running to the street fence. Hence this yard comprised all the "grounds" the house had, and sometimes even this was wanting, as in many cases these houses were set directly on the street. At the present time a little more taste may be shown in the buildings or houses than formerly. But in the situation of the farmer's house and the grounds around, very little, if any, improvements have taken place in the last forty years. For some reason or other, people living in the country have a fear that they shall not see everybody that passes in the street, and so the houses must be built directly on the highway, to gratify this curiosity ; and of course all the dust and dirt of the street in a dry time must be endured for the sake of seeing the "natives" as they pass by. Now it is astonishing to see what parsimony many farmers with large farms will exhibit in reference to an acre or two of ground for building a house. But ordinarily it is more owing to a want of a just appreciation of what a farmer's house should be, than from a real penuriousness. All this difference comes from education, an education which every farmer may have by a little care and study, but which they so often neglect, believing it more necessary to increase the number of acres than to make permanent and lasting improvements on what they now possess. Of course those farmers who occupy old farm-houses of a former generation cannot change the situation, though the back-grounds may often be enlarged, and the whole premises can be changed when the right spirit is set at work. For instance, if the kitchen garden is close to the house, as is often the case, take up all the old board and picket-fence between the garden and door-yards, also remove all the old rail fences near the house, and make one good substantial fence around the outside, making but one yard of the whole. The kitchen

garden, of course, will be removed to a place outside of the yard-fence, while the old garden can be used for fruit-trees, flowers, shrubs, etc. The old cow-houses, hog-pens, etc., if they are pretty near the house, as they often are, should be removed if they can be, especially the hog-pen, or a high board-fence may be put up in front to cut off the view from the house.

Here we only give some ideas how an old-fashioned farm-house may be improved by a little labor and taste. And when the farmer once commences an improvement of this character, he will find that as he goes forward with his improvements, new ideas will constantly turn up which will show him the value of such embellishments. All that is wanted by the farmer is a little exertion on his part to go forward and enter into this business. Of course where new grounds are to be laid out, a different plan will be carried out. In this case, the farmer can select his own grounds and make all the arrangements to his liking. An acre of land (two are better, and three or four better still) for a court-yard or "lawn," with the house standing on the highest point of land, the out-buildings a little below this level and in the rear, a country place can be made to make a good appearance. Whatever is the size of the yard, allow no cross sections of fences, but have one good substantial outside fence of wood, wire or iron, as the case may be. Where the yard is composed of five or six acres, the kitchen and flower gardens may be placed in the rear of the buildings with suitable enclosures. It is also well to select the site for your house and out-buildings in or near a group of natural forest trees, for shade and protection, if they are at hand. Apple trees and cherry trees may be used for this purpose. Should neither of these be within reach, as will often be the case, then it will be time and money well-spent to transplant some large forest trees of six, eight, and ten inches in diameter at the trunk, to shelter your house and out-buildings from the sun's rays, and storms. This may be done by the "frozen ball method," which we have often named before, which most northern cultivators understand. The plan is, just before cold weather sets in, go to the forest and select your trees for removal, then dig about them, cutting off all the branching roots, leaving the main tuft roots at the bottom uncut. In this way the tree must stand till the earth about the roots is frozen to a solid ball. In the mean time the holes for the reception of these trees must be dug, and all prepared before cold weather sets in. They should be dug some two feet larger than the ball of roots, and the space filled in with yard soil so as to give the young rootlets a good start in the spring. If there is a light snow on the ground the trees may be removed on an "ox-sled" or two drags fastened together. The trees must be raised from their bed by means of long levers, pulleys, etc., and placed on the sled. It will require a great number of hands and a strong team, according to the size of the trees to be moved. In most situations the trees will require bracing during the first winter they are set, to guard against winds and storms. When the work is well done they will continue to grow without much check the next season, and ordinarily none of the top need be cut off. Some cultivators have done well by removing large trees in the spring. It will be seen that the peculiar advantage of this system of tree-planting is, that you have fine shade trees to begin with, on a new place, instead of having to wait ten or fifteen years for small trees to grow up for shade. This is quite an item of economy in time.

In giving a description of what a farmer's country-house should be, we can only name the outlines, as the other points must be filled by the farmer himself. One thing we will name. Generally, now, where a farmer wishes to build a house, he just goes and consults the "builder," commonly a house-

carpenter mechanic. Of course he finds out what the lowest "job" price for a house may be. Then if he concludes to build, the plan and "architecture" of the house is left to this "builder" to determine, which in most cases will be a mere "copy" after some dozens of others. Now the farmer should know something of style and architecture himself. Then he should consult the best works on that subject, and not depend on the house-carpenter for this service. The farmer will find that it will cost him no more to build his house in a tasteful style, than to build it in violation of all the laws of good taste and of the rules of architecture. L. DURAND.

DERBY, Ct., September, 1855.

INSECTS INJURIOUS TO VEGETATION.

ORTHOPTERA. We now come to the next order of insects, the characteristics of which have already been given, and may be found on page 73, of the August number of this volume. All orthopterous insects are furnished with transversely movable jaws, resembling those of beetles. They do not undergo an entire transformation, but the young often closely resemble the adult insect. The changes which they undergo are a series of moultings, during which their wings are gradually developed. When fully grown they cast off their skins and appear in a perfect state, except that a few remain wingless. In their pupa state they are active and voracious; some species, like cockroaches, eating whatever they find, whether animal or vegetable. Some are carnivorous, devouring other insects. But most of them subsist on vegetables, and hence are very destructive, when they appear in large numbers.

This order is divided by Harris, after some of the older writers, into four groups, viz: Orth. Cursoria or Runners, Orth. Raptoria or Graspers, Orth. Ambulatoria or Walkers, Orth. Saltatoria or Jumpers, the name being suggested by the habit of the insect.

1. RUNNERS. Earwigs, which belong to this group, attack flowers, eating holes in their petals, and destroying their beauty. They also attack ripe fruits, as melons, etc. They are very timid, and often secrete themselves in the bottom of flowers, when their heads are covered, though their forked tails may be exposed to sight among the stamens and pistils. When disturbed, they run into the nearest hole, and they always hide themselves from day light. This habit has induced gardeners to provide hollow reeds, and other like contrivances, which will furnish these insects a convenient shelter into which they flee when alarmed, or as the day dawns; and in the morning they collect and destroy them.

The true Earwig has a long body, which is somewhat flattened, armed at the hinder end with a pair of slender sharp pointed blades, which they open and shut like scissors or nippers. They are not common; the name is often misapplied.

Cockroaches do not attack our growing fruits, and hence are not described in this connection.

Insects belonging to the second group are exclusively predacious, destroying those that subsist on vegetable food, and hence are useful rather than injurious. They are found chiefly in tropical climates.

There are in our climate very few insects that belong to the third group, these being also chiefly confined to tropical climates. They present a great variety of grotesque forms. Among those of this group which are sometimes found in our latitudes are :

Spectrum femoratum, a long, but very slender insect, cylindrical, oval; antennæ, long and slender, with numerous joints, and inserted before the eyes; they are usually of the color of that on which they rest. They are perfectly inoffensive, feeding exclusively on vegetables. This insect is described in Long's Expedition as found at Niagara Falls, and in Missouri. It has also been noticed in New-Jersey and in Massachusetts.

Spectrum Bivittatum. This insect is brown or black, with two yellow stripes extending from the head to the posterior extremity, antennæ a dull reddish brown; beneath, of a dull yellowish clay color; feet dusky, thighs unarmed, blackish towards the tip. The female is much larger than the male. They frequent the Orange Palmetto, and other trees in Georgia. When taken, they discharge a milky fluid, from two pores of the thorax, having a strong odor, like that of the Gnaphaleum.

Insects of the fourth group are by far the most numerous and most destructive. Achetæ, or Crickets, the Gryllidæ, or Grass-hoppers, and the Locust-adæ or Locusts, belong to it.

Achetæ, or Crickets are nocturnal insects, generally keeping themselves in concealment by day, though some species are found by the way-side and in paths at all hours. They often burrow under loose stones or clods of earth. These are *mole* crickets. They are about an inch and a quarter in length, of a light bay or fawn color, and are covered with a velvet-like down. Their wing-covers are not half the length of the abdomen. The wings are short, the fore-legs are contrived for digging, the shanks broad, flat, and three-sided, lower side divided by deep notches into four finger-like projections, resembling the hand of a mole, and hence this is called the *Gryllotalpa* or *Mole-cricket*. *Gryllus* being the ancient name for the cricket, and *talpa* that of the mole.

This cricket, *acheta gryllotalpa*, infests gardens and meadows, and by burrowing among the roots of grass, grains, and other vegetable growths and cutting them off, does much injury.

Our common species has short wings, and hence is called *Brevi-pennis*, in distinction from the European, which has long wings.

Crickets deposit their eggs in large numbers, in the ground, during the fall, and these are hatched in the following summer. Many of the insects die in the winter, but others shelter themselves under stones and in holes. The mole-cricket changes its abode according to circumstances. In doing this, it does not usually come out at the surface of the earth, but creeps, like the mole, through passages which it has dug for itself underground.

The "singing" or "chirping" of the cricket is produced by the males only, and is the result of rubbing their wing-covers together.

The following mode of destroying this insect is given by Kollar. "In the month of September, let three or four pits be dug, each two or three feet deep, and a foot wide, on a flat surface of about six hundred square yards. These pits are to be filled with horse dung and covered with earth. After the first frost, all the mole-crickets of the neighborhood will collect there to shelter themselves from the cold, where they may be destroyed in heaps."

The GRYLLADÆ, or "Grasshopper" family are well known, and in some seasons of the year are very abundant. But in our country, hitherto, they have not been particularly destructive. Such however is not the case with

other regions. The migratory locust belongs to this genus, and the terrible desolation produced by this insect is well known. In Africa, they appear in legions, and the devastation they commit is terrible. In a few short hours they devour every green thing over large tracts of territory. So dense are the masses in which they move, that they resemble a thunder-cloud. They have appeared in various parts of Europe, from Tartary, and have even found their way into England. In 1813, the French Government issued decrees, offering premiums for the insects or their eggs, with a view of destroying their larvæ. The plague, so frequent in the East, has been ascribed to the decaying of these swarms of locusts. It is supposed to be the G. migratorious which constituted one of the plagues of Egypt. They are sometimes used as food, and in the East are constantly offered for sale. Travellers have assured us that they form an agreeable diet, having the taste of cray-fish. The Arabs preserve them in a dry state. They are described in the New Testament, as having served as the food of St. John the Baptist. They are about two inches and a half in length. Their head and neck are green, body brownish, upper wings brown, melting into greenish, and with darker quadrangular spots. The under wings are transparent, and greenish towards the body. The blue upper jaws are furnished with sharp teeth. (Kollar.)

Gryllus formosus. The body is pale green, antennæ yellowish, thorax armed with numerous small denticles, above compressed, very much elevated into a regularly bow-shaped keel. Keel with two yellow radii, and yellow anterior and posterior edges. The Hemelytræ or wing-covers, with about six large brown spots, with pale wing-cells. It is a very beautiful species. Major Long found this insect on the Arkansas River.

Gryllus hirtipes is another species, very curious, but rare, occurring with the preceding. Its specific name is descriptive of its hairy feet.

The species of grasshoppers and locusts are too numerous for detailed description. Dr. Harris describes nearly thirty species. They are not often seen in so large numbers as to be very destructive to crops, though such an event has occurred in our own country, and during the present season the country around the Great Salt Lake has been utterly laid waste by them. Whether this is the true *Migratorius* we cannot judge, not having seen a description of the insect, but it probably is so.

As to the mode of destroying them, it is obvious that when they appear in such immense masses, their actual destruction is out of the question. Their numbers may be diminished by drawing a piece of cloth held obliquely over the ground by four persons, the lower edge sweeping the surface. Thus they are collected in a sort of winrow, and by a proper management of the sheet, they may be secured in a heap, and poured into bags. They should then be immersed in boiling water, and afterwards given to the hogs. The evening is the proper time for this service. Such means have proved beneficial. Several bushels of insects have been collected in a single evening.

In France, in 1825, six thousand, two hundred francs were paid, at Marseilles, in premiums, a franc being given for a kilogramme, about two and a half lbs., or a quarter of a franc for the same weight of eggs.

When meadows are in danger of being materially injured by grass-hoppers, the grass should be cut early, by which means a larger part of the growth is preserved, and many of the young grass-hoppers, being thus deprived of their food, will perish.

Domestic fowls, and some species of birds, devour great numbers of crickets and grass-hoppers. Turkeys will fatten upon them, when they are numerous.

The order HEMIPTERA, exceedingly prolific and destructive, is next in order.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SEVENTEEN-YEAR LOCUST.

MR. EDITOR:—In Vol. 8, No. 1 of your valuable publication, the Natural History of the Seventeen Year Locust is given.

About the year 1820, the said locust made its appearance in myriads in E. Feliciana Parish, La. They have been found in that Parish four feet beneath the surface of the earth, in the chrysalis state, whence they make their way to the surface, in what length of time is unknown. But when the period of changing to a superior state of existence arrives, they simultaneously appear above ground, leaving a perfectly round hole nearly vertical, 10 or 12 inches deep. The insect in the chrysalis state is encased in a semi-transparent substance that might be compared to horn of the same thickness. They have strong necks and fore-legs, and, as their eyes are shelled over, are not afraid of dirt, but like the mole can press the earth aside and force themselves through.

These insects contrive to get above ground during the night, and, though their pace is slow, find some post, tree or stump on which they ascend, and before morning leave the homely dress they brought with them from the interior, sticking to whatever gave them support, but with a terrible rent in the back. When they first assume their superior state of existence they are literally "soft-shells," but a few minutes of good sunshine invigorates them, their shells become "hard," and they are able to soar aloft and become harmonious.

In or about the year 1820, those locusts were so numerous in E. Feliciana Parish that it was useless to listen for a bell.

The males alone are musical; the music is played on two little shell or glass-like balls about the size of a duck-shot, under the wings, by a tremor of the wings acting on said balls.

The females are peculiar. They are furnished under the extremity of the body with two reddish-brown sword-shaped instruments, the curve turned upward. With this double instrument, they perforate the under-side of twigs about half the size of a man's little finger, making holes with each sword at a time—the sword, being slightly separated, and the holes slanting to about 45 degrees backward from the insect, from the perpendicular of the twig. These holes were filled with eggs resembling fly-blows, five or six to the hole. The twigs operated on had from three to seven, generally, of these perforations, lengthwise of the limb, and about an eighth of an inch apart. The eggs, after looking plump and remaining about four weeks, hatched out, nobody knew when, and disappeared in the ground as was presumed.

In 1831 the locusts reäppeared in E. Feliciana to a small extent. I should probably not have recollected the circumstance but that the publisher of the village paper predicted great ravages from them, mistaking them for one of the plagues of Egypt.

The W on the back mentioned, was in the locality where I saw them, on each wing. From that circumstance the old ladies in the country predicted war.

It is a great mistake to presume that the locust of our country ever cuts off the limb of a tree; they have no mandible. If they derive any sustenance from vegetation it is by suction with the slender bill they have. Some twigs die from the perforations made for depositing eggs.

The insect that circles or cuts off twigs is a species of beetle, and probably eats into twigs for food. It is the progenitor of the Flat-Head or Sawyer—a good bait in fishing for perch, and extremely destructive to pine timber.

W. M. D.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO, N. Y., AND THEIR USE.

Fagus Ferruginea, Beech.—The Beech is a very common tree in this vicinity, and is seldom found on high land unless associated with common hemlock; tree is from 50 to 60 feet high, and from 15 to 20 inches in diameter, seldom two feet; bark, dark gray and smooth, about $\frac{3}{8}$ of an inch thick; wood, of a yellowish white color. Sometimes large trees with a red heart, 6 or 8 inches in diameter; wood, smooth grain, and very hard when seasoned; when green, of uncommon weight. A log put into water instantly sinks. Leaves; elliptical-ovate, acuminate, conspicuously toothed, with 15 or 16 ribs on each side of the leaves, and a notch or tooth at each rib. Leaves from 2 to 5 inches long, and $1\frac{1}{2}$ to $2\frac{1}{2}$ inches wide, on short stems; flowers appearing about the middle of May in clusters, appearing like a small round ball of fringe of a reddish green color. Nuts in a roundish shuck, dividing into four parts, and covered with soft prickly nut; two together, and nearly three square, or the shape of a grain of buckwheat, about $\frac{3}{8}$ of an inch long, ripe about the middle of October. Nuts this year in great abundance, generally abundant every other year. The wood of the beech is used very extensively for fuel and plane stocks, and seldom for any other use in this vicinity; wood, generally strait grained, and works into fuel very easily. The trees are frequently hollow at the butt. The ash of the beech like the different maples is deficient in alkali, and the wood soon decomposes if left exposed to the weather. Trees cut in the latter part of winter begin to decay in the fall, especially small trees. The stumps from small trees sprout freely for a few years, when they die, and the stump is soon out of the ground.

The beech-nut furnishes a large amount of food for hogs. Farmers hogs frequently live the winter through on the nuts, and become very fat. They are also gathered for household use, being excellent for eating. It is thought by some that there are two varieties of the beech, but I have never been able to discover this. Large trees have frequently a red heart, which small trees seldom have.

Carpinas Americana.—Hornbeam, Water Beech.—No.2.—The Water Beech, as it is called in this vicinity, is seldom found except in the vicinity of streams, and rarely on hills, unless on wet land with hemlock. Tree from 15 to 25 feet high, seldom over 20 feet, and generally 7 or 8 inches in diameter; a few in this vicinity are 12 or 14 inches; generally in open woods, low and branching like an apple tree. Trees often grow with two main branches; trunk of the tree very uneven, being full of grooves and ridges, and frequently for a space of several inches nearly flat. The bark is nearly smooth, and generally is covered with two or three varieties of moss. The bark is of a dark color. The leaves are from 2 to 5 inches long, and from 1 to 2 inches wide, with 12 or 14 ribs on a side, and generally three notches be-

tween each rib. The leaves often terminate in a sharp point. Stem of leaves ½ inch long; flowers in April. Fruit, a nut on long stems, in pairs; at the base of the involucral scale, nuts flattish round, half of the size of a grain of wheat, sharp pointed, ripe early in October. Wood heavy, close grained and excellent fire-wood, also good for levers, being very stiff.

NICHOLS, September 10, 1855. R. HOWELL.

THE LARCH FOR TIMBER.

HOWITT, in his Rural Life in England, gives the following valuable suggestions:

"Larch will supply ship-timber at a great height above the region of the oak; and while a seventy-four gun ship will require the oak timber of seventy-five acres, it will not require more than the timber of ten acres of larch; the trees, in both cases, being sixty-eight years old. The larch at Dunkeld, grows at the height of 1,300 feet above the level of the sea; the spruce at 1,200; the Scotch pine at 700; and deciduous trees are not higher than 500. The larch, in comparison with the Scotch pine, is found to produce three and three-quarter times more timber, and that timber of seven times more value. The larch, also being a deciduous tree, instead of injuring the pasture under it, improves it. The late Duke of Athol, John the Second, planted in the last year of his life, 6,500 Scotch acres of mountain ground solely with the larch, which in the course of seventy-two years from the time of planting will be a forest of timber fit for the building of the largest class of ships in her majesty's navy. It will have been thinned out to about forty trees per acre. Each tree will contain at least fifty cubic feet, or one load of timber, which, at the low price of one shilling the cubic foot, only one-half of its present value, will give £1,000 per acre, or in all, a sum of £6,500,000 sterling. Besides this, there will have been a return of £7 per acre from the thinnings, after deducting all expense of thinning, and the original outlay of planting. Further still, the land on which the larch is planted, is not worth above ninepence or one shilling per acre. After the thinnings of the last thirty years, the larch will make it worth at least ten shillings per acre by the improvement of the pasturage, on which cattle can be kept summer and winter."

MANUFACTURE OF NEEDLES.—In the manufacture of needles, the hardening process is effected by beating them in batches in a furnace, and when red hot throwing them into a pan of cold water. After this, they are tempered by rolling them forward and backwards on a hot metal plate. Then comes the polishing. On a very coarse cloth needles are spread to the number of forty or fifty thousand; emery dust is strewed over them, oil is sprinkled, soft soap daubed upon the cloth, and the cloth is then rolled hard up and thrown into a wash pot to roll to and fro for some hours, when they are rinsed in hot water, rubbed in sawdust, and look as bright as can be.

EXTENSIVE LUMBER BUSINESS.

The Three Rivers (Canada) *Inquirer* gives a very interesting account of the vast business operations of Norcross, Philips & Co., and illustrates the almost inestimable advantages which a community may derive from the judicious enterprise of a single individual or firm.

On Thursday evening, the Hon. Mr. Drummond, Attorney-General, visited the extensive establishment owned here by Norcross, Phillips & Co.; minutely inspected the entire, and expressed his admiration of the economical distribution of the Motive Power, and of the excellent and suitable arrangements of the establishment.

Though the Saw-Mills under notice are only in the second season of their operations, they give employment to about three hundred persons, who receive liberal wages and permanent work. Had we not this resource in the immediate vicinity, in these extremely dull times, the laborers and some of the mechanics of the town would have suffered severely from the stagnation of business, and the high price of produce. Three hundred men, if married, represent a population of 1500; it therefore must be regarded as no small benefit to this class of our population, that so many are presented with the means of securing a comfortable support.

We cannot pretend to give an accurate account to our readers of the full benefit that our people derive from this establishment, but they may form an approximate opinion, when they are informed that upwards of one hundred thousand pounds are invested by the time the lumber reaches a market, thus including in the wide sweep of its benefits all classes, from the steamboat proprietor to the day-laborer. The proprietors reasonably calculate on sending this season fifteen millions of feet to the American market, and that this calculation is based on moderate data, may be presumed from the fact that, with four double gangs of saws, seven hundred and seven thousand feet of lumber were sawed in one week, and in eleven hours on Saturday last, 73,000 feet were cut. Shingles and clapboards are extensively manufactured; about ten thousand daily of the former, and four thousand of the latter. Window sashes and door frames, etc., will also be manufactured.

In addition to all this, a large machine house is erected, and executes steamboat and other machinery. The firm intend to commence the manufacture of sugar shooks for the West Indian market, as some of their limits abound in timber well suited for this branch of trade. One pervading rule of economy and regularity pervades the entire establishment. Even the saw-dust and refuse odds and ends of sticks are shovelled into the furnaces, and are found more than sufficient for fuel, and from an accurate calculation made by one of the partners, we were convinced that a steam-mill at the mouth of the St. Maurice could be worked as cheaply as a mill with water-power 20 or 30 miles higher up.

The great obstacle to lumbering operations hitherto, has been the excessive cost of the transit of provisions and cattle, 100 or 150 miles up the river. This difficulty, entailing enormous expense, and prodigious waste of time, was promptly perceived by Messrs. Norcross & Philips, and to obviate it, they constructed a steamer, and had it launched. This boat is of 100 horse power, 120 feet in length and 20 feet wide, and now navigates 70 miles of the St. Maurice, above the Piles.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL

AGRICULTURE, ETC., OF INDIANA COUNTY, PA.

[THE following interesting communication is received from a friend at a point near West Branch, about ten miles from the head of the Susquehannah, called Cherry Tree.]

This place is so called from the fact, that when William Penn made one of his purchases of the Indians, (the place of contract was down the river about Curwinville or Oldtown,) it was agreed that the purchase line should cross the river as high up as two Indians could row a canoe with two white men as companions. They set out, and having rowed as far as they could well do, they drew to shore, and at the place of landing was a large wild cherry tree standing, to which they tied their canoe. At the point where this tree stood, the southern line of the purchase crossed the river from east to west. This line is the dividing line between Clearfield and Cambria Counties, and cuts Indiana County on the dividing line between the townships of Montgomery and Green. Hence, the Cherry Tree is the point at which the purchase line, and the line which separates Indiana County on the west, from Clearfield and Cambria counties on the east, cut each other at right angles. Hence, also, the Cherry Tree is a point at which two counties and four townships corner. From the above you will see why this region is called the *Cherry Tree.* This region is also called the *Pine* region, from the fact that White Pine is very abundant all along the river on both sides for several miles back in the country. It is also called the Lumber region, from the fact that vast quantities of pine lumber, in the forms of hewn-timber, spars, and boards, are run down the river in rafts in the spring and summer during high water, or when, as they say here, there is a flood. This lumber is sold mostly at Marietta, below Harrisburg, to lumber merchants from New-York and Baltimore, and other places, whither it is taken by them for disposal. The lumbering season here is, for the most part, a very busy, laborious, and hazardous one. Sometimes it is very remunerative, as it was last spring a year ago. And sometimes, as last spring, it is a losing business.

As for agriculture in this region, owing to the heavy growth of pine, and the recent date of the beginning of operations here, not much has been or could well be done in that line. The people have been most dependent on buying their provisions, both for man and beast, abroad; that is, out of the Pines, in the older settlements till the last two or three years. The timber is now getting so reduced, that the people are beginning to prepare the ground, divested of its native products, for the plough and the seed. For the last three years or so, the face of the people has been setting strongly towards raising their own bread and meat. Last year especially, the clearing fever run high and strong, as if emulating the fever (drought) of the outer world. The last season was the most favorable for clearing of any ever known here, and every man seemed to put his best foot ahead to see how much he could clear. And the very legitimate consequence was, that a very large breadth of new ground was sown to wheat last fall, that is, for this region, and the winter and summer were both favorable to its growth, till the harvest. But during the time of harvest there was so much rain, that the crop was considerably injured, and yet wheat has fallen in price since harvest from two and a half dollars to one dollar and even less in some cases.

Oats were, perhaps, never better or more abundant here than this season. Owing to wet weather, considerable difficulty was experienced in harvesting the oat crop as well as the wheat. Oats have fallen in price from about a dollar down to about twenty cents, and some are expecting that they will be down to twelve and a half cents before spring.

The Rye crop was also good, and the price, instead of two dollars, as last spring, is slow at fifty cents.

The Corn crop looks very promising now, and more acres were planted this season than perhaps were ever planted before in one season in these parts. If the corn comes to maturity, there will probably be a fall in its price from one dollar and fifty cents to I cannot tell what figure. The forepart of the season was very unfavorable for corn, so much so that it had made but little headway by the first of July. Hence it is late in ripening. We have had no frost yet, except a harmless white one on the morning of the 19th of August.

The Hay crop was very good, all things considered. There was a dry spell about the last of May that threatened the hay crop somewhat, but at the time of cutting it was very good. But the rains were so frequent and abundant during and after haying, that much was spoiled. In fact, there is but little good, bright, sweet hay about these regions.

The Buckwheat crop now promises an abundant yield if no ill betides it, and, for these parts, a large breadth was sown. The starvation prices of the last year or so up to harvest, has had the effect of urging every man to raise all he possibly could of any and everything eatable for man or beast. So great was the scarcity, and so great the demand for seed buckwheat, as I have been informed, that it was sold at seven and even nine dollars a bushel. But if the crop comes in as abundantly as it now gives promise of doing, it will probably be humbled in price, like all its neighbors, to a low figure.

The Potato crop had, all along through the season, threatened to a be very abundant and healthy one, but, alas, during the last two weeks it has sadly changed its tune, and cries rat! rat! rat! so that, I think, the people instead of turning up their saucy noses in view of their abundance, will be very apt to turn them up at another smell before winter or spring. Prosperity makes some people very saucy and thankless. Like Jeshurun, if there is but even a prospect of waxing *fat*, they will begin to kick. They can't wait till they are fat. This has been, in truth, a very wet season—as wet as last season was dry. The rains have been not only frequent, but powerful, as though the very doors and windows of the clouds had burst open, and the winds were in keeping with the rains. It has been no uncommon thing to go out after the storm was passed and see the roads and fields all gullied out, and the corn and potatoes, etc., etc., lying exposed in all directions. On the whole, I think, that the *practice* of agriculture has been greatly on the increase here during the last three years, and bids fair for the future. I could wish I were able to say as much for the *science*. Most of them would think that the price of agricultural books and papers, and the time spent in reading them, as bad, if not worse, than thrown away. But the *world* moves, and thank God, (the great and the good,) the *science* as well as the *practice* of agriculture *progresses*, and will progress, till *righteousness*, and *peace*, and *truth*, shall reign throughout all the earth. "Till every man shall sit under his own vine and fig tree." "Till the nations shall beat their swords into ploughshares and their spears into pruning hooks." Glorious day that compared with this. God speed the cause of *agricultural science and practice* until the wilderness and solitary places shall be made glad, and the barren

waste shall become a *fruitful field*, and the earth shall yield her strength, and the family of man shall become one *great, peaceful, prosperous, and happy brotherhood.*

A County Agricultural Society for Indiana County was formed last March in Indiana town, which is trying to do something for the noble cause. It is to hold its first annual Fair about the middle of next month, (October.)

Praying the blessing of God *Most High* to rest upon you and the noble cause of agricultural science and practice in the world, I remain,

Yours truly, D. M.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

NOTES FROM THE FAR-WEST.

Mr. Editor:—Your valuable periodical, which punctually reaches us in these almost outskirts of creation, is perused with great interest, and as heretofore I have occasionally supplied a few of its pages with observations upon this part of the country, I resume my pen, and offer other gleanings, not, I think, uninteresting to the lovers of Agriculture.

Our harvest is now rapidly proceeding, and by far the greater part of the grain is secured in stacks, and in another week the oats and barley will also be saved. The yield is abundant, and the quality excellent; perhaps not so much bulk in straw as last year, The weather also around this region of country, with the exception of a few days, has been all that could be desired. Reaping machines are heard by the traveler as he passes along the road, and every hand that can be got is eagerly pressed into service.

Wages with us are not quite so exorbitant as last year, nor are hands quite so scarce. No grain this year, I believe, will suffer or be lost for want of help, as was then the case.

The crop of corn promises exceedingly good; the stalks, owing to the timely showers, are strong, and the ears are putting themselves out in a remarkably fine manner. The long drought in the spring made the farmer very anxious about this crop; many replanted, but eventually rain came, and all was rectified. This article has strangely risen in price since my short residence here; from 25 cents to 65, on the cob, per bushel.

Hay with us is not a heavy crop; but enough, and what has been preserved is in first-rate order. The old stock of hay has been entirely consumed, and we had almost a panic last spring, as many farmers were out of it before the grass grew. Gold would not purchase it, although it had risen from three to ten dollars per ton; but we were much more highly favored than many other neighboring parts of the country.

The past winter was extraordinary for the quantity of snow. The oldest settler says he remembered but one such before. High drifts of snow-banks, storms of the same, continuing twenty-four hours, cold piercing winds, etc, made it a hard winter for cattle, and but few got through without some loss. It fell more heavily upon sheep than any other kind of stock. Many lost nearly the whole of their lambs, and, owing to the lateness of the spring, numbers of their old stock died.

There is too much inattention and carelessness here about live stock. The country is large and not fenced, and many roam away and are never sought after. Winter provender has usually been abundant and cheap, and the winters such that cattle have shifted a great deal for themselves upon the numerous stacks of straw and corn-stalks which have been left standing in the open prairies. But as stock and provender have increased in value, and the waste lands become enclosed, more attention is paid to this branch of husbandry, particularly in improvement in the breeding and rearing of all kinds of cattle.

The dairy here is perhaps the most profitable part of the farm. I have seen cows yielding from the udder quantities of milk quite equal to anything I have known in the East; but here they dry up sooner, as the prairie grass does not grow so late, nor is the bottom any thing like the thickness which we find in the old pastures of the longer cultivated States. A friend of mine has this spring introduced a fine Durham bull, which is expected to take the premium at our coming annual county fair. Coming from a more Southern clime, it will be needful to guard it against the rigors of our severe winters; and I have my doubts whether its progeny will ever be so fine and heavy as in a warmer temperature.

Rock County, on the north-western part of which lies my landed property, on the meandering Catfish stream, but which has now received the more classical name of *Wyhorra*, is said to possess a soil inferior to none in any of these Western States. Several new occupants from the East have bought within sight almost of my residence, and several new houses are going up. The breaking-plough, with its team of from four to eight yokes of oxen, is turning over the new soil, into which no ploughman has ever before probed.

Horses with us maintain an extravagant price; but many are brought from Ohio, which may be purchased at a more reasonable rate. One hunded and fifty dollars will buy a good horse, and not much less. It is a great country for raising these animals. It is rare to meet a team without a colt and sometimes two, jogging beside their mothers. They are put to work too early, and then sometimes become prematurely old. This creature here, I sometimes think, seems doomed to mishaps. A neighbor of mine found his only one cast and dead in his stable the other morning. His almost next resident lost one by its slipping upon the ice and breaking its leg; while my son's, a most valuable one, a few days since was struck by lightning and killed instantaneously.

Sparsely as at present this part of the country is settled, there has yet been a fever for emigration, and numerous families have left this vicinity for Iowa and Minnesota. Some who went to reconnoitre have returned, fully satisfied they should not be benefited by a removal. Most have gone to buy Government land, which can be had at a much cheaper rate than with us, where speculators have got possession of the greater part. Lands entirely unimproved have this season been sold at prices from seven to fifteen dollars per acre.

These new States have a fine opening for the raising of fruit and ornamental trees. I have a young apple orchard now beginning to bear. The trees are luxuriant in their growth; and I intend next spring to head them down considerably by pruning. My peach trees two winters ago were nearly killed by the severity of the frost, but since then they have made fresh shoots, and nothing can appear more healthy. Some young vines of the Isabella and Catawba kinds, which I brought from the East two years ago, have this

season a few bunches of grapes upon them, and the bearers are extremely luxuriant, requiring a little protection, while young, during the winter.

I am trying to prevail upon the farmers to plant ornamental trees around their homesteads. I planted, the first year I was here, seeds of the Alanthus, Locust, Laburnum and Katalpa, and some of them have now the height of eight or nine feet, with which next spring I hope to ornament my dwelling and the land contiguous thereto. AGRICOLA.

FREEDOM, Wis., Aug.

VERD-ANTIQUE.

WE have more than once referred to the new quarries of this elegant marble, opened in Roxbury, Vt. A recent number of the *Boston Traveller*, describing their machinery, highly commends the rock as more durable than other marbles, "resisting the action of acids," heat, frost, etc.

We value this rock as one of great importance in ornamental architecture, giving us a material that is easily wrought, and susceptible of a beautiful polish. But the writer referred to runs wild.

What is Verd-Antique? Any elementary treatise on Mineralogy will inform the reader that its green is serpentine, and its white, lime stone. Serpentine, again, is composed chiefly of magnesia, with more or less of silex, alumine, oxides of iron, of manganese, etc. It is the proportion of these elements which determines the color, and some of its physical qualities. But the list of its component parts alone is enough to prove the unsoundness of the pretence that it is not affected by acids. Magnesia, its principal element, is ready at any moment to go into "fusion," as the phrase now is, with any free acid. The oxides are also unable to resist the claims of an acid. We have no doubt that particular specimens may be *selected*, in small fragments, that would bear heat or frost, or other ordinary exposure, quite satisfactorily, and other fragments will exhibit other capabilities. But let any fragment, having white veins (white marble) in it, be tested with an acid, or let other specimens, colored with the oxide of iron or manganese, be exposed to the fire. The earthy oxide is both friable and pulverulent. The black oxide is used with common salt and an acid to produce chlorine.

It certainly forms elegant pillars, columns, pilasters, etc., and we have seen very handsome fire-places formed of this rock. But we think it decidedly bad taste to mix up white marble with this. The Capitol at Washington may be made a splendid pile. But if such striking contrasts, such medleys of colors, are to be incorporated into it, it will more resemble a huge baby house, than a pure and dignified specimen of civil architecture. No. Leave such ornamentations to our dashing milliners, and to those by whom the merit of any such combination is measured by the boldness of its contrasts, or by its variety of color.

The durability of a building stone in this climate cannot be measured very accurately by its condition in the antique structures of Italy, where the climate is so unlike ours, and the condition of the atmosphere is not only so variable and not so various.

We only add that this rock is not a true marble. Where the green is predominant it should be rather called serpentine, and the durability,

strength, etc., of the rock will be that of serpentine variously modified by its connection with the different coloring minerals. If it is a marble, it is, of course, a carbonate of lime, and soluble in any acids.

We regard the Verd-Antique as well worthy the attention of our architects, and for their information we cut the following from the article above referred to:

"The location of the modern Verd-Antique is on the summit of the Green Mountain range, in Roxbury, Vt., in a narrow valley made by the branches of the White river and the Dog river, the former running southerly into the White river and the Connecticut, and the latter into the Winooski and Lake Champlain. The quarries lie on the westerly side of this valley, where, full of richness and beauty, as they are, they have been lying dormant, but in full view of settlers and even explorers for years and ages. The marble, so far as it has been discovered, lies in a line running nearly north and south, a distance of about half a mile immediately contiguous to the Vermont Central Railroad—the rails passing, indeed, at the very foot of the quarries. The quarries located and now owned by the American Verd-Antique Marble Co., consist of six or eight out-crops, a few rods distant from each other, and ranging in height above the railroad from twenty to one hundred feet. One of these quarries has been opened and worked to considerable extent—sufficiently to test the quality of the material, and to indicate an exhaustless supply. The marble is found to improve rather than otherwise, as the quarrying proceeds, in texture and beauty, and in all the qualities, which render it superior to other marbles, especially in strength. It is ascertained also, to a practical certainty, that blocks of any desirable dimensions can be got out and wrought with facility into all the various forms which utility and ornament may suggest.

"The Company have contracted with the Government to furnish a considerable quantity of this magnificent material for ornamental portions of the new Capitol at Washington. They are now engaged in fulfilling this contract, and among the pieces to be furnished are several columns, about a foot in diameter and ten feet in length, some of which were being sawed at the mill on the occasion of our visit. When these columns are finished and raised in their places, the American Capitol will be worth visiting for a sight of them. They will be truly beautiful, and as worthy of admiration as the famous columns of Verd-Antique in the Villa Pamphilia, at Rome.

"There is a mill for sawing the marble into slabs, or other pieces, as may be wanted, immediately contiguous to the quarry. It has five or six gangs of saws, and apparatus for grinding the marble, and is operated by a steam engine of thirty or forty horse-power. We saw at the mill many finished and polished specimens, which have been wrought to answer individual orders; among the rest a center-table slab, four feet square, and an inch and a quarter in tuickness, which is extremely rich and beautiful. We venture to say that it cannot be matched from any other quarry in the world; and that it is incomparably more beautiful than any other quarry can produce. The green color, varying from the deepest to the lightest hue, pervades; and the seams or veins are of the purest white and scattered throughout the material in every direction, with a variegation of gracefulness which no art could produce. This splendid slab, we understood, had been ordered by the Governor-General of Canada.

"This Verd-Antique marble is not only beautiful in the highest degree, but it posesses other most valuable qualities, in which marbles generally are deficient. It has been submitted to the examination of practically scientific

men, and tested, and found to resist completely the action of frost or moisture, and has been exposed for a long time to a temperature of 212 degrees Fahrenheit, without exhibiting the slightest effect of the action. As to durability, therefore, it must take the highest rank. It has been likewise thoroughly tested as to strength, by the ordinary mode of applying a crushing force to the square inch. In this respect it is likewise preëminent. And in another very important particular, for many purposes for which marble is used, this Verd-Antique has been successfully tested. It is found to resist effectually the action of acids. A polished slab has been exposed to the action of concentrated muriatic acid, for twenty-four hours, without the slightest corrosion or change of color being discoverable.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WHEAT TRADE FROM TENNESSEE.

MESSRS. EDITORS:—A century has rolled its tedious round since the article of wheat has been an important surplus in the trade of the farmer of Tennesee, and so long has Eastern Tennessee been bound by those formidable natural granite barriers to transport her products over the broad-based and close-capped Allegany and Cumberland mountains. Thus ever locked up, her hardy pioneers and their sons were forced to sacrifice their labor, till the glorious present year, 1855. In this bright year her farmers have put upon the seaboard (about one-third in your own city) about 300,000 bushels of this valuable cereal, so luxuriantly and healthfully grown in the sweet valleys and hill sides of lovely East Tennessee. It is with the greatest pride I record the opinion, that our own East Tennessee alone can annually furnish treble the quantity aforesaid for market, aside from employing all the time her manufactories of flour, which by the way are very considerable. The route over which our wheat was this year shipped from Knoxville *via* Atlanta to Charleston, S. C., thence by ship to your city, gives to our citizens but half satisfaction. The progress goes on. Already has the Old Dominion scaled the heights of the Alleganies with the farmers' iron horse, already has the proud summits of the adjacent hills been razed, and fast is the improvement pushing toward our lovely mountain-bound home. We of Tennessee are moving the very earth to greet her at the line of Virginia, and will as sure strike her veteran hand with the crash of trains, as the year 1856 rolls its last season half out. This road will bring our district at once in line of easy transport for wheat to New-York overland, a great desideratum in the transport of this article. No doubt the wheat grown in Eastern Tennessee will then, in larger quantities be re-shipped to Europe. Our facility being equal, our surplus will vie with any other district of equal area south of the Alleganies in this article. In view of this, our intelligent farmers are improving their seeds, fertilizing their lands, employing the most improved plans for harvesting, cleaning and putting up ready for market their abundant crops of the present year, which have not perhaps in *quantity* been equal to that of last year, but in *quality* far better. Talking of railroads, it may be supposed that the one spoken of, being a continuous line from the entire East

to the whole South and West, dividing Tennessee into two islands of about equal territory, would be sufficient for us, but the fact is otherwise. A road is now being put under contract from Charleston, S. C., entering the State about equi-distant from its eastern border to the Cumberland Mountain west, including the district aforesaid, and crossing at right angles the road running east and west, cutting Cumberland Mountain and Cumberland Gap, and terminating at Louisville, Ky. This work is sure to be completed before long; and with branch roads to our beautiful county towns dotted along the valley, ere long Eastern Tennessee must be the garden of the South. And I am happy to add, that the recent influx of money has caused institutions of learning for either sex to be established and respectably administered in nearly every neighborhood in our mountain fastnesses. This pleasing fact is submitted as the surest guaranty of our lasting prosperity.

Mill Bend, Tenn., August, 1855. A. L. B.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FALL AND SPRING PLOUGHING.

Editor of the P. L. and Anvil:—Much has been said and written in regard to ploughing in the fall. Some contend that land ploughed in the fall is not as productive as when ploughed in the spring; for spring grains of the broad-cast. As your plough cuts a wide and deep furrow, (for it has a strong team to draw it,) I would be much pleased to have you or some of your contributors that till the soil for a livelihood, give their opinions upon the subject; for it is one of great importance to the farmers of this western country.

What little experience I have had in Fall and Spring ploughing, convinces me that ground ploughed late in the fall is as productive as when ploughed in the Spring, for small grain, and in many places for corn. When corn is to be planted upon sod, my opinion is that it should be turned over in the fall, late, shortly before the ground closes up with frost.

A few years since, I was working by the month for a farmer in the Buckeye State, where the soil is composed of red clay and some portions of gravel. Late in the month of November, I was set to breaking up a piece of pasture ground, where the introduction of the plough was never known to the soil. After having turned over several acres, a gale from the north-west came up in the night, and the ground was so frozen the next morning that ploughing could not be done. The remaining part of the piece had to lay over until Spring. In the Spring I finished ploughing. At the usual time of planting, corn was planted, well-tended during the season of tending corn. In the fall, when the crop was harvested, there was one-third more corn per acre where the ground was ploughed in the fall than where it was ploughed in the spring; the soil was equally as good or better where it was ploughed in the spring as where it was ploughed in the fall. The next season corn was planted again; the yield was the same as before. The next season it was sown with oats for the purpose of seeding to grass. At harvest time, like most men that work by the month, one morning I was introduced to a fine muly cradle, for the purpose of laying them in the swath, and as I cradled across the furrow,

I could tell the moment that I struck the grain where the ground was ploughed in the spring. The result was the same as with the corn. During these three years I tried the experiment on old ground for oats. The result was, where the ground was broken late in the fall, the crop was by far the best. I sowed the oats as soon as it was early enough in the spring.

Whether this would prove true in all soils I cannot tell. Many of your correspondents that have tilled the soil for years, can tell me their experience in fall and spring ploughing, in the *Plough, the Loom, and the Anvil.*

L. S. SPENCER.

LYNN, WARREN CO., IOWA.

COST OF RAISING WHEAT, CORN, ETC.

THE next volume of the New-York Agricultural *Transactions* will contain a detailed farm account of Mr. William Johnson, near Geneva, from which we have the following interesting items in regard to the cost of raising different crops the last season. His statement is published in the Journal of the State Society, for the present month, and shows very creditably the order and method of Mr. J.'s agricultural operations.

The farm contains 80 acres of tillable land, divided into nine lots, numbered from one upwards, and an accurate account kept with each. The soil is dry loam, with a clay sub-soil, pretty uniform throughout the farm. Each crop is charged with the interest on the value of the land producing it, and with all the labor and material used in its production. Of wheat six acres were sown, the whole expense was $122 40; the product was 126 bushels, or 21 bushels per acre; this makes it cost per bushel a trifle over 97 cents. But deducting the value of the straw, estimated at $18, we make the cost of the wheat but 83 cts. per bushel. It was sold at $1 81, leaving a fair margin for profit at either figures. But at the price of wheat for many years past, the profit would be little or nothing.

Eight acres of barley cost $102 20, and produced 285 bushels, or 32½ bushels per acre. It cost very nearly 37 cents, and sold for $1 per bushel. This produced a greater per cent. of profit than the wheat, as we believe it generally has for a series of years.

Ten acres of corn, on clover sod, cost $153 26. The product was 410 bushels of corn, and $60 worth of corn stalks. Mr. Johnson states the cost of raising the corn at 27½ cts. per bushel, but if we deduct the value of the stalks from the whole expense, it makes the cost of the corn but 22½ cts. per bushel. We should be glad of some explanation from Mr. J. on this point, as the value of the stalks and straw may have been allowed to balance some part of the expenses not indicated.

Ten cows were kept upon the farm, yielding an average of 210 lbs. of butter each. Mr. J. estimates the product of each cow worth about $64, and the cost of keeping, $26 85. It costs 12½ cts. per lb. to make butter on Elmwood farm, and we think it cannot be sold for less anywhere with much profit. His pork, killed at 9½ months old, fed on milk and fattened with corn, costs 5 cts. per pound. The balance over expenses on the whole farm, for the last year was $953 52.

Mr. Johnson practices the following system of rotation. 1st. Corn, to

which is applied all the unfermented manure he can get. The next spring it is sown with barley at the rate of 2½ bushels of seed to the acre, then sown to wheat in the fall, with a topdressing of fine manure, of about 6 loads to the acre. The following spring it is sown with 8 quarts of clover seed and 5 quarts of Timothy, with one bushel of plaster per acre, when it is allowed to remain three years in grass. The usual product is 55 bushels of corn, 30 of barley, and from 20 to 30 of wheat, per acre. The manure is kept under cover, and a regular system of underdraining is carried out.

A GOOD FIELD OF HOPS, ETC.

To Capt. J. Farwell & Son:

It was truly gratifying to me on the 6th inst., to witness the early picking of such a noble field of hops as your hands were then finishing in so favorable a *time*. This is just the way dictated and pursued in skilful husbandry. It adapts the crops and manure to the soil—bestows the best culture in the best season, having secured the best plants from a judicious selection of seed, it gives pleasure and profit in the process, and *returns* for vigilance and toil. At present prices, with the flavor and fragrance of your luxuriant growth, you must realize a pretty sum, while your intelligence and example will tell on the practice of other farmers who witness the results. I am happy in addressing you through *The Plough, the Loom, and the Anvil*, which for years has been a welcome visitor to me with thousands of others, who are sharing the labors of able editors and correspondents whose sentiments, teachings and illustrations, I am confident, will well accord with your views and taste, and will repay the cost and attention it so well deserves. Like a garden soil, its deep, rich, and cultivated thoughts and interesting variety will, I doubt not, incline you to introduce it to the acquaintance of those dear to you. We live for others. Our *influence* will be felt further and longer than eye and ear and tongue can reach. What we acquire and disseminate through periodicals, is almost without a limit. Soon it will be a matter of *memory* with us and with our successors. "Son, remember that in thy life time thou *receivedst* thy good things," etc. And no less of what we have *done*. "What thou doest do quickly. In haste. You may hear from me again,

Yours truly, Benjamin Willard.

Lancaster, Mass, Sept. 8th, 1856.

Self-closing Faucet.—Mr. Tuthill, of Boston, has introduced to the public some self-closing faucets for the supply of water or other fluids; the peculiarity being that there is no drip nor waste, and also an instantaneous full stream. Vulcanized rubber forms the internal spring and packing to close a valve acted upon by pressure with the finger. It is, in the truest practical sense, a self-closing contrivance, as the fluid can only run so long as the p ressure of the hand is upon the valve.

STATE FAIRS.

RHODE ISLAND.—THE HORSE AND CATTLE EXHIBITIONS.

These fairs of "the Society for the Encouragement of Domestic Industry" commenced on the 11th September at Providence.

The number of horned cattle was nearly 120; of sheep, about 25 or 30; of swine, a large number, and some 25 or 30 coops of fowls.

An address was delivered on Tuesday evening in Westminster Hall, by B. P. Johnson, Esq., of Albany, Corresponding Secretary of the New-York Agricultural Society.

Mr. Johnson spoke of the need that farmers should take an interest in the improvement of agriculture through the various facilities presented by agricultural societies and other organizations and means of intelligence. The European system should be more extensively copied, for there are farms in England the annual rent of which was more than the whole value of equally large farms here, showing what care and intelligence might do. Thorough weeding, even to weeding grain, and thorough draining, were advocated as expenditures which would richly repay, and the latter in particular, by making before useless land valuable, would in a single season pay back the cost of permanent drains. The triumphs of American agricultural instruments at the London World's Fair were quoted, and it was to the support and introductory experiments of our agricultural societies, encouraging inventors, that we owed these triumphs. Educate the mind, was the motto for farmers. Sustain every society tending thitherward. Make young men intelligent,—let our country boys be made equal to the city boys in all the controlling elements of education, and it will tell on the farms and the land,—equal to every duty, even to legislating, so that the pure influence of the country air might be felt in the seats of power, sending abroad its blessings the wide earth over.

The exhibition of horses commenced on Wednesday, at eleven o'clock, with a grand cavalcade of nearly all the horses entered for premiums. The entries were, stallions, 36; breeding mares, 33; draft horses, 25; ponies, 11; matched horses, 76; family horses and roadsters, 126; family matched horses, 16; fillies, 9; making a total of 312. The cavalcade made a very fine appearance, the line of horses and vehicles extending more than around the course, which is a mile in length.

The Exhibition of Stallions, which succeeded the cavalcade, was an object of much attention, the different animals being made to show their points before the judges' stand. Some of these were most magnificent animals, principally of the Morgan and Black Hawk breeds; and among them, from Massachusetts, were "Young Black Hawk," from Harrison Bacon, of Barre; "Ethan Allen," from O. S. Roe, of N. Cambridge; a fine Gifford Morgan, Hampden, from N. R. Washburn, of Springfield; Gray Eagle, from A. Burdee, of Natick; Young Empire, from Francis Twichell, of Petersham. There were also American Consul, from L. J. Keyes, of South Killingsly, Ct.; a Black Hawk colt, "Mose," three years old, from Lowell Pitcher, of East Greenwich, R. I.; a magnificent chestnut stallion, from W. Bower, of Richmond, R. I., called "Ashuelot Morgan"; Matchless, by Wm. B. De Wolfe, of Bristol, R. I.; Morgan Black Hawk, Jesse Com-

stock, of Millville, R. I.; Stockbridge Chief, by P. W. Bishop, of Chatham, N. Y.

This part of the programme closed with some fine trotting in harness by several stallions, in which the animals entered by Messrs. P. W. Bishop and O. S. Roe, took a distinguished part, receiving much applause.

The Exhibition of Breeding Mares followed. Most of these were beautiful animals, and some of them proved to be very swift in harness.

The Exhibition of Fillies was also attractive, though the animals were few in number.

At a short time after three o'clock the course was cleared, and the great event of the day, to many, a trial of speed, took place. In this, although there had been thirteen entries, but nine horses competed, neither of which had ever before trotted for money, nor had their drivers taken part in prize races. The race was by mile heats, the best three in five, and continued till a somewhat late hour. The first prize of $200 was taken by Genesee, owned by Mr. Livingston, of New-York city, and the second of $100 by the Stranger, owned by Mr. Barnard, of Boston.

HORTICULTURAL SOCIETY EXHIBITION.

This Society, under the supervision of its President, John J. Stimson, Esq., and its Secretary, John F. Driscoll, Esq., commenced its tenth annual exhibition Wednesday morning. Westminster Hall was occupied by six large tables, extending from one extremity to the other, covered with fruit, flowers, etc., with an abundance of room between the tables for the comfort of visitors. The display of flowers and fruit was very extensive, constituting nearly the whole exhibition, and the air of the room was redolent with a delightful perfume.

"There were two curious plants on the tables, both imported from South America and entered for premium by Mr. George W. Chapin, through his gardener, Mr. George Anderson. One of these was a butterfly plant, (concidium,) covered with beautiful little yellow flowers exactly like small butterflies on the wing,—not a single part of the insect except legs being wanting. The other was a large cissus discolor.

"Both of these were objects of great attention, particularly the latter, which displayed its dark red and green leaves around a wire frame to the height of four or five feet.

SIXTH ANNUAL FAIR OF THE NEW-HAMPSHIRE STATE AGRICULTURAL SOCIETY.

"The Fair of the State Society of New-Hampshire opened in Manchester, Wednesday, September 12.

"The ground enclosed for the purposes of the Fair embraced an area of thirty acres. In the enclosure were forage tents for the cattle and other stock, tents for the display of manufactured articles, machines, agricultural implements, horticultural and floral specimens, vegetable produce, etc. There was a horse track one half mile round, on which the Society expended upwards of two hundred dollars. Adjacent to the track was a large gallery of seats capable of accommodating nearly three thousand spectators. The same grounds were occupied last year.

An unusual number of fine horses were exhibited. The exhibition of sheep and swine, though not large, was good. The show of vegetables was excellent, and of cloths "very superb."

The Annual Address was by Hon. Charles B. Raddock, and Addresses were also made by Hon. John M. Botts and Governor Metcalf.

VERMONT STATE FAIR.

THE *finances* of this Fair appear to have demonstrated the truth, and the importance too, of sundry suggestions which we made a few months since under the title, "Policy of Fairs," in which we contended that all charges for witnessing these exhibitions were of evil tendency, and might interfere with the good results which might otherwise be derived from them. The correspondent of the *Traveller* says:

"Within the grounds every thing seemed to pass off very satisfactorily, though in one particular, we are sorry to say, we heard a good many complaints, if not a general one, in regard to the admittance fee. At all the previous Fairs 12½ cents has been charged for a single admittance, 25 cents for a ticket good for one day, and 50 cents for a season ticket for the three days. But this year the committee, it seems, have changed the admittance fee to 25 cents for one admittance, and the purchaser is not given the privilege of entering the grounds but once on that ticket, so that if one leaves for a moment, on entering again he has to pay another quarter of a dollar; and then, to make the matter worse, no season tickets at all are sold. This extra, and we must confess exorbitant charge, the committee say they are obliged to make in order to pay expenses. At the previous State Fair, held at this place in 1852, they say their expenses exceeded the proceeds some $300, and that, too, when they had no premiums to pay, which they have this year; but we think the committee has mistaken in this matter."

The same correspondent remarks in reference to the show of horses:

"From 4 to 6 P. M., was devoted to trotting on the course. As regards the exhibition of horses—in any other part of the United States but Vermont it might have been considered as a superior show, as it really was, but it did not seem to quite come up to the anticipations of some, but it is said that numerous accessions are expected to-morrow, though to one not thoroughly acquainted with the resources of it, in reference to this noble animal, it would not seem an easy matter."

The arrangements announced for the exhibition of horses, show the superior ability of this State to acquire renown in this department. The programme for Wednesday, September 12, reads thus:

"Horses will be exhibited on track for inspection of Committees in the following order, commencing at 9.30 A. M. 1. Stallions of Hambertonians and other bloods not included in the following classes: 2. Descendants of the Bulrush Morgan, stallions. 3. Descendants of Woodbury Morgan, stallions. 4. Descendants of Sherman Morgan, stallions. 5. Matched Horses. 6. Foreign Horses. 7. Geldings and Mares. Each class will pass twice around the track, halting the second time in front of the Committee's stand, afterwards be subject to the direction of the Committees.

Brood Mares and Fillies of the first four classes will be collected in divisions at 2 o'clock, for inspection of the Committees.

"Trotting on the course will commence at 4 P. M."

MACHINE FOR PICKING COTTON.—P. W. Porter, of Memphis, Tennessee, has invented a machine that will pick cotton. He says that with his machine, one man, and two horses will pick and gather up, without loss, four acres of cotton per day—about equal to the labor of 30 men.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BARLEY.

BARLEY is a spring crop. There are two varieties, one good for its farina and for making barley gruel, the other for the brewery, for the manufacture of malt, to be used in beer. Of this, I would say a few words.

Beer in Bavaria is made entirely of pure malt with hops, but in that which is in so general use in Germany and America, the brewers always employ drugs as a substitute, as the bean of St. Ignatius, a narcotic by which the beer is made stronger and more intoxicating, and also cheaper. The best beer which I ever drank in my life was that of Croatia. It was pure and wholesome, and so thick (essentielle) that if one should pour a few drops upon the table, and should leave a glass standing upon it, on the following day it would be difficult to remove it.

I have made myself acquainted with the process of its manufacture, and I recommend it to farmers as wholesome and nourishing.

A tub, having a double bottom, is placed upon three legs, around which an empty space is left to collect the liquor. Fresh straw is laid upon the external bottom, on which is piled the malt. The vessel is then filled with cold water, and stones, heated in the fire to redness, are placed in this water till it boils. The liquor is then drawn off into another vessel through a cock at the bottom, and after it is sufficiently racked, hops are added, and the mass is cooled. It is then left to ferment. This process being completed, it is poured into a large barrel or hogshead, and forms an excellent drink, which is named by the Croatians *stein bier*, or stone beer.

RYE.—MALT BEER.

RYE is of two sorts, one sown for the winter, the other in the spring. The first is of a smaller kind, and the envelope on the hull is thinner, its farina is white, it is kept more easily. It requires a good soil, clayey, and manured. Spring Rye grows well in sandy soil, but when manured it is larger grained; the hull is thicker, gives less farina, which has a whiter color, although it makes a darker colored bread than that kneaded from the farina of Winter Rye.

Spring Rye is always cultivated in northern countries, as in Russia, in Poland, Sweden, and Denmark. It was not known in France till 1834, when, as I was traveling from Mayenne to Lessy, about twelve miles, and I perceived that it was not cultivated, I made known to M. Dejardin, of whom I have before made mention, that this crop would prove profitable. This gentleman, after listening to my suggestions, prepared the soil, obtained seed from Poland, from the environs of Krasaystof, in the palatinate of Lublin, and upon sandy plains it became profitable in certain years, of which I shall treat in an essay upon leguminous plants. Rye is universally used for bread in the North, Wheat, which is exported from this country, being the food of Southern Europe. Rye is also used in the North in the manufacture of spirits. The best spirits of wine, such as is employed by apothecaries for

medicines, is from Rye. In the North, all the best liquors are prepared from it, such as hold the first rank, even in preference to those of France and Southern Europe manufactured from the vine. But the North does not wish to consume all its Rye in the fabrication of spirits, and therefore mixes with this potatoes, and the spirits thus produced are also pure, but have not the same delicate taste, and are less highly prized.

[The two preceding articles were translated from the French manuscript of M. Saniewski, by the editor.]

DWARF PEARS.

THE *Country Gentleman* disposes of the question of dwarf pears thus:

"We have repeated and almost constant inquiries in relation to the value of the pear on quince stocks. 'Are dwarf pears going to answer? Are they not a humbug? Are they as good as standards? Would you rather have a tree on pear or quince root?' These are some of the questions that are continually asked; and the conflicting answers that are given do not help to clear up the question.

"Yet it is a very simple one, and very easily understood when cleared of the fog which partial observers and interested persons have thrown around it. To say which is best under all circumstances, would be like attempting to answer the question, 'Do you think the watermelon as good as the strawberry? Shall we not confine ourselves hereafter to the best of these two, and discard the other as a humbug?'

"Dwarf and standard pears are each excellent in their places. The standard pear, as a general rule, grows to be a much larger tree, requires more time, needs more room, ultimately bears more per tree, will endure more neglect, and in most cases live to a greater age. The dwarf will come sooner into bearing, will occupy less space, and will not bear neglect, but requires good cultivation. We are not sure but the last quality is a positive recommendation; for planters certainly need the stimulus of necessity to induce them to take better care of their trees. A standard will indeed grow and bear under ordinary circumstances; but give it the best chance, and the fruit will be so much improved, as sometimes to be scarcely recognized. The dwarf is emphatically the tree for *the garden*, where two hundred may be planted on a quarter acre, instead of but twenty-five standards, and where no difficulty exists in giving them the best soil and treatment. Those who are about occupying new places, may secure for themselves a supply of fruit in two or three years by planting three year dwarfs; and pomologists may get the fruit of new kinds the first or second year.

"One leading reason why some have pronounced dwarfs a failure, is the attempt to raise *too many kinds* on the quince. There are a few sorts that are entirely at home on this stock, and are always seen in a flourishing state, under anything like favorable influences, among which sorts may be mentioned Louise Bonne of Jersey, Duchess of Angouleme, Glout Morceau, and Vicar of Winkfield, trees of which, twenty or thirty years old, are now productive and vigorous, and will probably live to a hundred. Some of these, and especially the Jersey and Winkfield, seem to grow well on almost any kind of quince. But all do best on the French stock, and this only should be used. The Angouleme appears to be the hardiest dwarf under neglect.

We have just examined an orchard of these, about nine years planted, which until the present year, had been almost totally neglected for five or six seasons, and enveloped in weeds and grass, and growing on a hard stony soil. The present season they have been cultivated but not manured, and they all show a thrifty appearance, and are bending under their load of magnificent fruit. The trees are about two and a half to three inches in diameter, and stand erect, although allowed to run up as standards, without pruning. They bore very little while neglected. As a proof of their superior hardiness, all or nearly of all of those originally planted are flourishing, while other dwarfs, interspersed, have nearly all died out from neglect.

"There are several sorts of the pear that usually do well and live long on the quince, if enriched and cultivated annually, but not otherwise."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE MAMMOTH SUNFLOWER.

We live in a mammoth world, a mammoth age of progress, and we read of mammoth stores, buildings, etc., etc. I beg leave to bring into notice through your pages a mammoth Sunflower. To me it is a particularly old and endeared friend, the companion of my boyish days, the earliest pride of my youth, when I reared it in my own little garden, which I could and did proudly call my own real estate, and from which I had legally the right to forbid all trespassers, and could plan and adapt its cultivation to my own taste and wish.

This child of Flora partakes greatly of aristocratic qualities; not one of your low, creeping, trading productions, which hardly elevate themselves from the dust and dirt of the bed whence they were born. It is lofty in stature, splendid in colors, raising its head high above the children of the soil that surround it, turning its face towards the east, paying its orisons to its great antitype—the great king of the day.

The wise men of Greece gave it the name of Helianthus, literally the flower of the Sun. Its round noble disc is studded with a sort of golden down in the center, while the edges, throwing out its spear-shaped floral leaves, are significant and emblematic of the rays of light emanating from the center of our solar system.

Our mammoth flower which we propose to describe, is among the giants of this class. He stands by the walk in our garden, taking precedence on our right hand, rising to the stature of nine feet and six inches, loaded with blossoms, branching out of his stem to the number of forty; all, lacking four or five, in full bloom. His girth of the stem on the surface of the earth is full nine inches, and he yet stands majestically upright, notwithstanding several furious storms have lowered some compeers around him.

The seed of these plants is more useful than many suppose. It contains a great deal of oil; fowls devour it voraciously, and thrive well upon it. Last fall I threw some heads of it into my pig-sty, and found they were soon eaten by the inmates, and this I intend to be the final disposal of my great Mammoth Western Flower above described. How descriptive of the vanity and termination of all earthly greatness! R. S.

FULTON, WIS.

THE CULTURE OF STRAWBERRIES.

The New-York Horticultural Society, at a recent Conversational Meeting, arrived at the following conclusions in regard to the best method of cultivating strawberries:

"The best soil for the strawberry was stated to be a gravelly loam. The land should be well drained, and to every acre applied twenty bushels of unleached ashes, ten bushels of lime, and two or three pounds of salt. The ground should be well broken up; animal manures should be eschewed; leaf is the best, and this should be carefully spaded in. About the first of July is the best time to set out the plants. In doing this, pains should be taken to have them firmly rooted. The roots should be eighteen inches apart, and the plants a foot apart.

"Sometimes it will be well to allow greater interval, in which case the interstices can be filled up from the growth of the runners. After setting out the plants, throw on a covering of tan-bark an inch or an inch and a half in depth, then water them plentifully, and the moisture will be retained a long time. After cold weather comes on, cover the strawberry beds and the walks with clean straw, throwing over a little brush, or something to keep the straw in its place. In the spring, remove the straw, and make use of some fertilizing agent to give the plants vigor, as sulphate of soda, sulphate of ammonia, or nitrate of potash. Keep the roots out, see that the plants are bountifully watered, and let nothing intervene to disturb or retard their growth till you gather the fruit. The beds should be made over as often as every three years."

GRAFTING BEETS.

At the beginning of September, 1853, Dr. Allan Maclean, of Colchester, an ingenious experimentalist and good physiologist, grafted a young plant of the White Silesian Beet upon a root of Red Beet, and *vice versa*. At the time of the experiment the plants were each about as thick as a straw. A complete junction was effected. There was a slight contraction at the line of junction, much like that formed by "choking" a rocket case; above the line of contraction the plant was absolutely white, below it was absolutely red. Not a trace of blending the two colors could be discovered. By similar experiments on either vegetables and plants, Dr. Maclean had so far assured himself of the perfect independence of scion and stock as to acquire the belief that neither the coloring nor any specific characters of one or the other would or could be altered by their union. The result of the trial wholly confirmed that view, and demonstrated that the White Beet adhered to the Red Beet by mere junction of cellular matter; that of the scion and stock holding together in the first instance, and each afterwards produced its own coloring matter in its own new cells as they formed superficially, the red cells adhering to the white cells while in the nascent state, but retaining each the peculiarity belonging to it, without any interchange of contents through the sides of the cells in contact.

This is entirely consistent with all that has been discovered by the modern physiologists who have applied themselves to a study of the nature of the individual cells of which plants consist. They have clearly shown that each cell has its own special inherent of secretion; as indeed may be seen by any one who examines thin sections of variegated leaves or other parts. It will then be seen that some cells are filled with a red coloring matter, others with yellow, others with green. In other words, one cell has the power of secreting red matter, another yellow, and so on. The colors do not run together, but are contained each within the cell that produces it. Why this is so no one knows; all that we are acquainted with is the fact that in the cells of the Red Beet resides a power of forming red matter, and in those of the White Silesian Beet that of forming yellow; and this peculiarity is not effected by the one growing to the other. Red-forming cells produce their like and yellow-forming theirs. Thus the limit between the scion and its stock is unmistakeably traceable, and notwithstanding the combination of the two sorts in one, each perseveringly retains that which is natural to it.

What is true of Beets is true of all other plants, and we shall endeavor on an early day to apply to the practice of grafting the unquestionable facts above explained.—*Gardener's Chronicle.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE TEMPERATURE OF THE SEA AND THE LAWS OF HEAT.

SALMAGANDI, OUACHITA PARISH, LA., Aug. 25, 1855.

MR. EDITOR:—In the *United States Magazine* is an article upon Vesuvius and its late eruptions. It is observed that in descending into some mines the temperature has been found to increase at a regular rate, which at a few thousand feet in depth would be sufficient to melt all substances that are known on the crust of the earth. . . . But this theory seems to be refuted by the ocean, which shows no increase of temperature as we descend into its depths, but rather the contrary. Then it is said, according to the supposed law of increasing temperature, as we descend into the earth, there would be sufficient heat at eight or nine miles from the surface, not only to set the ocean boiling, but to evaporate the whole mass of waters at once. But man with his sounding apparatus has examined the water at that depth, and found it "cool as a cucumber."

I have seen an anecdote of a pupil who, in reciting his lesson, repeated the truism, "heat causes all bodies to expand;" his teacher requesting an instance, said he, "When the weather is hot, the days are long." Whether the elucidation was satisfactory I have never learned. But, as the pupil said in his recitation, heat causes all bodies to expand. That is good reason that the water at the lowest depths of the ocean should be coldest—the more heated, and consequently lighter particles rising to the surface, simply by the force of gravity. In ponds and lakes where the water is still, by sinking a jug a few feet, cool water may be obtained, while the surface, being heated from above, is much warmer.

What is the cause of earthquakes or eruptions of mountains, I cannot

pretend to say—the surface is what I am interested in. But were the editor of said publication at a hog-killing, and could see our Southern slaves, (who, by the way, are the happiest people in the country,) put their hands immediately under the bottom of a kettle to pour boiling water out—not particularly to make a display—but because they know from experience that the coldest water is at the bottom and keeps the bottom cool, he probably would not be surprised that the coldest water in the ocean is at the bottom. A kettle of boiling water is an atomical ocean at a high state of temperature.

W. M. D.

AMERICAN INSTITUTE.

A SPECIAL meeting of the American Institute was held on the 17th inst., at the rooms, No. 351 Broadway. Dr. D. M. Reese in the Chair; John W. Chambers, Secretary.

After the reading of the Minutes of the previous meeting, the Committee on the Admission of Members submitted the names of six candidates for members, and they were unanimously elected.

The principal object of the meeting being to hear a report from the Managers in relation to the exhibition to be held next month at the Crystal Palace, Mr. Smith, the Chairman, presented a lengthy report, from which we gather that the applications for space exceed the expectations of the Managers. The principle railroads have agreed to bring articles to the exhibition and return them free of charge. The shafting for the machinery is already in place. Two steam-engines are ready for operation in the Palace.

Among the articles already entered is Dr. Drake's gas engine of 24 horse-power, six or seven entries of gas cooking apparatus, planing machines without number; besides large quantities of the staple productions of our country in iron, wool, and cotton. The machinery department will be filled with ingenious labor-saving machinery.

Quite a spirited debate arose in relation to those Managers who have accepted, and have not come up to the work.

Some of the members insisted that they should forthwith resign and give place to those who are willing to act.

Delegates were appointed to visit the New-York State Fair at Elmira; the New-Jersey State Fair at Camden; the United States Agricultural Show at Boston; the Queens County Fair at Flushing, Long Island; and the Westchester County Fair at Whiteplains, etc.

An appropriation was made to pay current expenses.

After the transaction of some other business, the question arose as to the time of adjournment. Some were in favor of meeting every week to hear the reports of Committees. Gen. Hall moved to adjourn to the regular meeting, as the Managers were continually occupied in the arrangements for the coming Fair. His motion prevailed.

We understand that a Poultry Show will be held the last week of the Fair.

A large number of fire engines were entered, and a test will be had of their power during the Exhibition.

The Agent informed the meeting that, from the applicants for space, he had no doubt but the Palace would be filled.

THE NAUMKEAG MILL, SALEM, MASS.

This mill was established eight years ago, and having been planned and constructed upon the wisest principles of economy, and furnished with the best of machinery, and having been managed moreover with careful prudence and good judgment from the beginning, under the direction of Edmund Smith, Esq., it has enjoyed uninterrupted success. During all this time it has, with the exception of a single year, paid regular semi-annual dividends of from three to five per cent.

We have in time past, we believe, published some of the statistics of its operations, but as we are now noticing, briefly, various branches of industry in Salem and vicinity, it may do no harm to state the facts anew.

The mill building is a substantial affair, 400 feet in length by 60 feet in width, and 4 stories in height. It contains six hundred and forty-two looms and thirty-three thousand spindles. This machinery is driven by a splendid steam-engine of four hundred horse power, built in Providence, by Corliss & Nightingale, at a cost of $18,500, besides $13,000 for the boilers. It has been run without the necessity of stopping for the past seven years, and is a model of mechanical beauty.

The mill produces Sheetings, Jeans and Flannels, at the rate of over one hundred thousand yards per week, the quantity annually produced being about five million five hundred and fifty thousand yards of goods. In this manufacture they consume annually three thousand seven hundred bales of cotton. Other chief articles of consumption are, 2000 tons of coal, 3,500 gallons sperm oil, 30 tons potato starch, etc. The mill gives employment to 600 men, women and children, and it pays for labor, *monthly*, *eleven thousand dollars*, all in cash, no orders or equivalents being given.

We may add that the mill and works are lighted by gas manufactured upon the premises, in a neighboring building, at a much less cost than would be incurred for oil, while the light is much safer, and has proved quite satisfactory since its introduction into the mill some three years ago.

The capital of the company paid in is $700,000. The cost has been $720,000.

The safety of the shareholders appears to be wisely guarded by a full insurance on all the buildings and machinery, and on goods of the Corporation in the market, and by a guarantee on all sales of goods by reliable and able factors.

It appears from the last annual report that the product of the mill, for the year ending Nov. 30, 1854, was 5,073,648 yards of cloth.

The general expenses, repairs, etc., amounted to $32,921, and during the year, the engine, shafting, etc., were placed in as good order, for the ten years to come, as they were when first put into operation.

The net earnings of the year, deducting the expenditure above named, amounted to $85,758 06. Deducting from this the amount paid in dividends, and there was a balance to the credit of the company of $30,870 06.

The total amount of surplus then on hand was $174,803 91, or twenty-four dollars and ninety-six cents on each of the 7000 shares issued at that time.

From the foregoing statements the reader can form an idea of the advantages which our city derives from this one mill, and what might be secured were the manufacturing business more extended. Of the hundred and thirty

thousand dollars which are annually paid to the operatives, the larger portion is expended in town, to the benefit of our traders, mechanics, etc. The same classes also derive grains from the labor and materials required, incidentally, in the operations of the mill. The dividends also accrue largely to our own citizens, (there being 500 shareholders,) who own a good portion of the stock.

The tendency of a factory establishment like this, to increase the amount and value of real estate, is seen by a glance at the neighborhood of the mill. Ten years ago there was not a more quiet and retired locality in the city, but few buildings having been erected thereabouts. Now it is an animated and populous neighborhood. New streets have been laid out in the rear of the boarding-houses, and buildings are going up steadily upon the remaining lots of land. There are in the vicinity two machine shops, an iron foundry, a ship yard, where a brig of 260 tons is building by Mr. Edward F. Miller, of this city, a marine railway, a candle factory, and several stores. Some of these establishments are to be sure as old as the factory itself, and even older, and we mention them only to show what a busy neighborhood it is.—*Salem Observer.*

GLOUCESTER, MASS.—ITS INDUSTRY.

A CORRESPONDENT of the Boston *Traveller* says that the mackerel fishery for the Gloucester fleet on the north-east coast promises well the present season. About 200 sail are now absent from home. About a dozen have arrived from their first trips within the last fortnight, bringing tolerably good fares; from 150 to 300 barrels. The mackerel, however, pack out small, the market prices are low, and sales dull just now.

The "crafts" fishing along our coast and bay are doing better than they have for some seasons past. Sharks seem to be more plenty this year than ever before; they are very troublesome to the schools of mackerel and the fishermens' nets which are set in the "coves" and along shore. A week since a monster shark made his appearance at Little Good Harbor Beach, near "Salt Island," driving a large school of "Pogies" ashore, and some one hundred or more had to remain on dry land to get clear of their enemy. They soon, however, had to surrender to the fisherman's knife and wash-tub, for mackerel bait.

Notwithstanding the depressed state of the fishing business at Gloucester during some years, the town is on the march of improvement, and is growing up for a "big" city at some future time. New streets and avenues are yearly opened, with neat, large dwellings erected thereon. At least three hundred buildings have been erected in different parts of the town during the past two years. A large and fine church has also been built for the Congregational Society on Middle street. The old Baptist church on Pleasant street has at last fallen into the hands of the Roman Catholics, and they have removed it to a lot of land on Park street. The Baptist society having built a new church, they disposed of the old edifice to private citizens, a few years ago, and it has remained *dead* property ever since. The company at last getting tired of the property, placed it at auction. A small number of persons only attended the sale, and it was knocked off to a Salem gentleman

for less than $300, who was present as an agent for the Salem Catholic priest. Several citizens would have purchased the old church and converted it into a dwelling-house if they had been aware that it was to pass into the hands of the Roman Catholics. Five years ago there were but two Irish Catholic families in town; they now number some 500 in Gloucester, Rockland and Lanesville. A number of foreigners have settled in Gloucester from Nova Scotia and the British Provinces.

The authorities of the town are now taking the census. I have been informed by a canvasser that the population will come up to 10,000; an increase since the last census of some 3000. With the floating population, Gloucester has, no doubt, 2000 inhabitants, at the present time.

Uncle Sam has selected a good and central spot of land on the corner of Spring and Pleasant streets to build the new Custom House, Post-Office and Court-house on. The building is to be of brick, fire-proof, large and substantial; to be commenced probably in a month or two. A new Custom-House has long been needed at this large port of entry.

Mr. Hardy has on the stocks at his ship yard, Beach street, a real clipper schooner, of about 60 tons burden, built for the Lynn fishermen who attend the Boston market. Mr. Davis, at East Gloucester, has on the stocks a fine schooner for the fishing business.

Oak Grove Cemetery, lately laid out, (entrance on Washington street,) will be, in time, one of the most delightful burial-places that can be found in the State. The grounds are very tastefully arranged. Lots sell for $75 to $100 at the present time. The Masonic Lodge have erected a neat monument over the grave of the Hon. Wm. Ferson.

A large number of strangers have been making Gloucester their seashore resort this season. A number could not get accommodations, and were obliged to seek other places. It has been quite a drawback to visitors to have both the Pavillion and the Gloucester House closed this summer. They could have both been filled with company, if opened. Let some good, popular landlord lease these hotels, keep them up with the times, and a good, safe, profitable business may be done at both houses.

INDUSTRIAL STATISTICS.

USQUIPAUG, R. I.—*Usquipaug Mills.*—J. B. M. Potter, Agent; Manser C. Shippee, Superintendent; Wm. W. Henry, Foreman. *Cotton* Mill has 18 cards of 18 inches; 1150 spindles, making satinet warp. Woolen mill has 2 sets cards and 24 looms. Make jeans.

ALLENTON, R. I.—*Yawgoo Mill*, woolen.—W. G. Rose, agent; Nicholas R. Gould and others, foremen. Mill has 2 sets cards, 2 jacks, 16 looms. Make jeans; warps purchased.

KINGSTON, R. I.—*Moorsfield Mill*, woolen.—Daniel Rodman, owner; Oscar Gardner, foreman. Mill has 2 sets cards, 2 jacks, 16 looms. Make coarse kerseys; 200,000 yards yearly.

NARRAGANSETT, R. I.—*Steam Mill*, woolen.—Potter & Eaton, owners; B. S. Rose, Superintendent; Benjamin Aldrich, Engineer. Mill has 2 sets cards, 32 looms. Make jeans; warps purchased.

NEW-LONDON, CT.—*Repair Shop of N. L. & W. Palmer, R. R.*—Wm. H. Griggs, master of motion power. Road has 65 miles of trade; send out 4 trains daily; repair and rebuild locomotives; do repairs for Amherst and Belchertown R. R. Wood-shop has C. M. Hutch, foreman. Forge-shop has John W. Rose, Foreman; P. B. Hovey and others, engineers.

MONTVILLE, CT.—*Rockland Mill*, woolen, has 30 looms. Make Satinets.

Cordage Mill, E. H. Palmer.—Make 250 lbs. cords daily. Make bed-cords, plough and clothes-lines, coil-rope, etc.

Cotton Rope Mill.—Wm. L. Allen, Superintendent. Turns out 250 lbs. daily.

UNCASVILLE, CT.—*Uncasville, Mang. Co.*— 1 mill, cotton. W. R. Wood, manager; Ira Dimock, Machinist. Mill has 36 cards, 36 inches wide; 3697 spindles, 120 looms. Make stripes, dereims, ticking, etc., of yarn No. 13.

NORWICH, CT.—*Repair Shop* of Norwich and Worcester Railroad. R. Colburn, Master of power-shop, has 4 lathes and other tools. Send out 2 passenger, 2 steamboat, and 3 freight trains daily. Road has 66 miles track. Wood-shop has 20 hands, and G. R. Bentley, foreman. Forge-shop has 5 fires, one furnace, and T. H. Pollard, foreman.

Machine Shop of Peleg Rose & Co., owners; L. H. Ellsworth, foreman. Shop has 20 lathes and other tools in proportion. Foundry attached, A. H. Vaughn, foreman, has 20 hands on average. Make paper-mill machinery, steam engines, shafting, and do job work.

GREENVILLE, CT.—*Clark's Mill*, cotton.—W. F. Clark, agent; Blanchard, superintendent; D. Morrill, foreman. Mill has 36 cards of 18 inches; 2044 spindles, 56 looms. Cloth is 30 inches wide, 48 by 52, of yarn Nos. 16 and 19.

Machine Shop of J. S. & S. J. Mowrey, owners. John A. Bennett, Foreman. Shop employs 80 hands. Forge shop has 18 fires. Make axles, springs, steam engines, paper-mill machinery, also Salisbury iron for axles, and best English steel for springs, supplying many of the best carriage makers with these superior articles.

Bliss Mill.—W. Bliss, Agent. Mill has 800 spindles. Make satinet warps.

Paper Mill, Chelsea Mang. Co.—J. D. Mowry, agent. James Lindsay, Superintendent. Mill has 28 engines, running night and day, six machines. Make all qualities from finest book to newspaper. Employ 180 hands.

GAS WORKS—*Norwich Joint Stock Co.*—Works have 12 crucibles set. Make superior gas. Charles F. Stacy, gas-fitter, connected with the Company.

JEWETT CITY, CT.—*Jewett City Mill*, J. A. Slater, agent; Burlson, superintendent. Mill has 2856 ring and 2664 mule spindles; 210 looms. Make 20 different kinds of denims, stripes, ticking, etc.

Ashland Mill, Cotton.—N. D. Adams, Agent; Wm. Randall, superintendent; Linnæus Wild and others, foremen. Thomas L. Young, repairer. Mill has 10 cards of 36 inches; 1200 by 1000 spindles, 66 looms. Cloth 36 inches. 52x60; yarn, Nos. 28 and 30.

Hopeville Mill, woolen.—Henry Lathrop, agent; Cyrus Titus, superintendent. Mill has 4 sets cards, 40 looms. Warps made on the premises. Make satinets.

PACKERSVILLE, CT.—*Packer's Mill*, cotton. S. A. Packer, agent; Stephen Cole, foreman. Mill has 1700 spindles, 52 looms. Make drillings and diapers.

YANTIC, CT.—*Yantic Mill*, woolen. E. W. Williams, agent; D. L. Huntington, Superintendent; Wm. H. Wise, H. H. Hart, E. F. Yarrington, and

Eli Cory, foremen. Mill has machinery to turn out 2000 yards flannel daily.

FITCHVILLE, CT.—*Fitch Mill*, cotton. A. Fitch, agent; J. W. Thompson, superintendent; Clark Reynolds, repairer. Mill has 48 cards, 30 inches; 5130 spindles, 160 looms. Cloth 30 and 36 inches, 64x48, yarn 15.

DAYSVILLE, CT.—*Daniel's Mill*, cotton. D. A. Daniels, agent, J. A. Daniels, superintendent. Mill has 13 cards, 30 inches; 2100 spindles, 58 looms. Cloth 28 inches; 60x68, yarn 29.

FISHERVILLE, CT.—*Masonville Mills*, 3, cotton. Dr. Wm. Grovesenor, agent; Lucius Briggs, superintendent and agent; E. B. Anderson, Lewis Wade, Thomas Williams, George T. Seaver and others, foremen. Mills have 10,000 spindles, 51 cards 30 inch, 200 looms. Cloth is 38 and 39 wide, 78x108, yards 35 and 38.

THOMPSON, CT.—*Quaddick Mill*, cotton. H. S. Bartlett, agent; Lucian Randall, Daniel Peck, foremen. Mill has 1650 spindles, 38 looms. Cloth 28 inches, 60x60, yarn 29.

PUTNAM, CT.—*Wilkinson Mill*, cotton. Edward Wilkinson, agent. Mill has 11 cards of 36 inches, 2350 spindles, 60 looms. Cloth 36 inches, 52x52, of yarn 18.

Morse's Mill, cotton. M. S. Morse, agent; S. Nichols, superintendent; Albert Knight, David T. Spencer, Israel Kibbee, overseers. Mill has 48 cards 30 inch, 8588 spindles, 200 looms. Cloth 36 and 38 inches, 72x72; yarn 30.

Ballow Mill.—H. Ballow, owner; E. A. Cutler, superintendent; Zadock Wills, John D. Wills, foremen. Mill has 62 cards, 24 inch, 9000 spindles, 250 looms; cloth 28 inches; 60x64, yarn 28.

Rhodesville Mill, cotton. J. P. Bailey, agent. Mill has 24 cards of 28 inches, 100 looms. Cloth 28 inches, 64x72, yarn 30.

EAST WOODSTOCK, CT.—*Smith's Mill*, cotton. G. P. Smith, agent; Reuben Gage, overseer. Mill has 1250 spindles, 36 looms. Cloth is 28 inches. 50x52, yarn 25.

NEW-BOSTON, CT.—*New-Boston Mill*, cotton. Billings and Upham, agents; A. J. Davis and J. B. Bulbitt, foremen. Mill has 18 cards of 18 inches, 20 looms. Cloth 28, 60x60, yarn 28 and 30.

WILLIMANTIC, CT.—*Duck Mill.* Wm. L. Jillson, agent. Mill has 12 double cards, 1300 spindles. Make duck and bags.

Willimantic Linen Co., 1 mill.—E. Johnson, agent; Charles S. Bliven, superintendent; Robert Dungan, Joseph Rollinson, Henry M. Hinde, L. W. Spencer and others, foremen. Mill turns out 4000 yards crash, and 200lbs. shoe-thread, and 200lbs. twine daily.

Paper Mill.—L. & W. Page has 6 engines running day and night; make printing paper. In this place three mills, cotton; not running when these statistics were collected.

Hop River Mill, cotton. Moses B. Harvey, agent; Wm. B. Hawkins, superintendent. Has two dressing frames; make satinet warps.

Wells Co., 1 mill, cotton. John H. Capen, agent. Mill has 12 cards 36 inches. Make satinet warps, colored and plain.

NORTH WINDHAM, CT.—*Lincoln's Mill*, woolen. Stowel Lincoln, owner. Mill has 1 set cards, 1 jack, 5 looms, 1 bag-loom. Make felting cloths for paper hangers and calico printers. Turn out 100lbs. daily.

Matchany Mill, cotton. L. D. Spencer, superintendent; Ithel E. Town, foreman. Mill has 16 cards 36 inches. Make satinet warps.

MANSFIELD CENTER, CT.—*Bobbin Factory* of George F. Swift; employ 6 men on average, and make bobbins, jack and all kinds of spools.

Machine-Shop of N. Rexford; E. S. Capen foreman, has 10 lathes and other tools. Make machinery for silk mills and do jobbing.

Machine-Shop of Orlow Atwood, has 4 lathes and other tools. Make silk machinery and do job work.

South Coventry, Ct.—*Washington Mill*, woolen. N. Kingsbury & Co., agents; G. W. Capron, superintendent; James Soules, A. B. Boardman, overseers. Mill has 3 sets, 26 looms. Make satinets, warps purchased.

Coventry Depot, Ct.—*Woolen Mill*, H. R. Fargo, agent; Joel L. Ladd, Charles C. Bennett, foremen. Mill has 3 sets cards and 24 looms. Make satinets—warps purchased.

Eagleville Ct.—*Eagle Co.*, 1 mill, cotton; E. B. Hibbard, agent. Mill has 18 cards 18 inches, 2000 spindles, 44 looms; make 30 inch drills.

Merrow, Ct.—*Stockinett Mill*, woolen. Pitkin, Merrow & Co., agents. Andrew Webster, E. C. Otis, foremen. Mill has 3 sets cards; make stockings, shirts, drawers etc.

West-Willington, Ct.—*Willington Thread Co.*, 1 mill; Origin Hall, agent. Mill has 4 cards 30 inches. Much yarn purchased of B. Greene. Make sewing thread, Johnson's patent finish, superior article.

Stafford Springs, Ct.—*Mineral Springs, Mang. Co.*, 1 mill, woolen. J. Converse, agent; C. W. Eaton, Geo. B. Grant, foremen. Mill has 3 sets cards, 30 looms on satinets. Warps purchased.

Converseville Co., 1 mill, woolen. P. Converse, agent; Franscis Hyde, Patrick Powers and others, foremen. Mill has 3 sets cards and 30 looms on satinets. Warps purchased.

Granite Mill Co.—1 mill, cotton; G. M. Ives, agent. Mill has 20 cards 36 inches, 5000 spindles, 121 looms. Cloth 28 inches, 60x64, of yarn 28.

Orcuttville Co.—1 mill woolen; R. G. Pinney, agent; Henry Orcutt, superintendent; Alonzo L. Eaton, Orrin L. Fletcher, overseers. Mill has 2 sets cards, 18 looms. Make heavy satinets. Warps are purchased.

West Stafford, Ct.—*West-Stafford Linen Co.*, 1 mill; A. W. Case agent; C. J. Holmes, superintendent. Mill turns out 1800lbs. shoe-thread weekly.

Stockinett Factory of Samuel Fitch, has 6 rotary machines and makes webbing for rubber works.

Machine-Shop of S. Fairman, has 3 lathes and other tools. Make patent universal chucks.

Machine-Shop of J. W. Fairman & Co., has 3 lathes and other tools. Make Fairman's patent scroll chuck.

Machine Shop of Washburn & Whiton, has 8 lathes, 2 lances, and other tools. Make scroll chucks, elevators, planers, and do job work.

Stafford Ct.—*Woolen Mill* by Converse & Hyde; E. W. Daniels, superintendent; F. N. Andrews, Lewis Putney & others, foremen. Mill has 2 sets, 20 looms. Make satinets; warps purchased.

Valley Co., 1 mill, cotton; Moses B. Haney, agent. Mill has 14 cards 18 inches, 800 dead fancy spindles. Make satinet warps, 1800 threads, No. 18 yarn; 9600 weekly.

Machine-Shop of Charles Holt. Shop has 6 lathes and other tools. Make finishing machinery for woolen mills.

Hydeville, Mang. Co., 1 mill, woolen; Elijah Fairman, agent; James Risley, superintendent; Ashley D. Studley, E. H. Risley, Frank G. Fairfield, foremen. Mill has 3 sets cards, 24 looms. Make satinets, fancy and plain; warps purchased.

Staffordville, Ct.—*Machine-Shop* of Howe & Converse; Falkner, super-

intendent. Shop has 14 lathes and other tools in proportion. Make looms, fulling-mills, and do job work. Make Talbet's improved loom.

Staffordville, Mang. Co., 1 mill, woolen; E. A. Converse, agent; Charles A. Tainter and others, foremen. Mill has 3 sets cards and 28 looms, on satinets; warps purchased.

Hope Co., 1 mill, woolen; E. A. Converse, agent. Mill has 3 sets, 26 looms. Make satinets; warps purchased.

Converse Brothers.—Mill woolen; E. A. Converse, agent; Jos. H. Converse, superintendent; Stillman Ellis and others, foremen. Mill has 2 sets, 20 looms. Make fine satinets. Warps purchased.

HARVEY'S DEAD SPINDLE.

The spindle of Mr. Moses B. Harvey, of Stafford, Ct., differs from any heretofore introduced among cotton spinners. It is a short spindle, costing fifty cents less per spindle in a frame than the live spindle costs. A warve is fitted to the spindle revolving around it. Projecting from the upper end of the warve is a tube, which, entering the base of the bobbin, gives motion to the bobbin in part, the other part being secured by a pin in the base of the bobbin, suited to, and entering into, a hole in the upper plain of the warve. Motion is communicated to the warve, and thus to the bobbin, in the same way as it is given on a frame of live spindles.

One advantage of the Harvey spindle over the common one is, that it requires much less power to run it; and another is, that it will do more work, because capable of being run at greater speed. These advantages, added to the fact that a frame costs fifty cents less per spindle than other frames cost, are powerful recommendations of this spindle over other ring spinning. In the mill of the Valley Co., Stafford, Ct., are several frames of Harvey spindles running with perfect success. The general introduction of this mode of cotton spinning will be a general gain to all manufactories.

IMPROVED FLOCK CUTTER.

The knives upon the improved Cutter of Mr. Charles Holt, in Stafford, Ct., are sixteen in number, and are spiral around the shaft to which they are fastened. Each knife winds round one-fourth of the shaft, and hence four knives are constantly engaged in cutting. The outer cylinder is made to turn slowly, and bring the flock into contact with the knives. This outer cylinder, and also the frame-work of the machine, are made of iron. Thus, in looks and in operation, Mr. Holt's improvements are obvious and of substantial value, being capable of doing much work, and of doing that work well.

LOWND'S PATENT PEN AND PENCIL CASES.

These cuts represent the outside appearance of a newly-patented and very useful article in the way of pen and pencil. Fig. 1, the case closed up portable and convenient for the pocket. Fig. 2, the pencil, and fig. 3, the pen, ready for use.

By examining the internal arrangement of No. 1, we find therein a stationary slotted tube within which is the pencil tube, outside of which, between it and the case, is the pen and pen-holder, all so arranged that they operate without interfering with each other, and the whole made much stronger and more durable than when both pen and pencil are at the same end.

What is claimed as new and secured by letters patent is the slotted tubes, the pencil tube and the pen-holder, arranged and connected as set forth in the letters patent. To operate: Pull out the chased tip A with the right hand, turn it to the right, and push it back to its place, this will leave the pen out; then pull out the tip C, and it is as long as an ordinary extension case. The pencil is thrown out in the same manner as the pen, by turning and pushing back the tip C. Close the case by extending the inside barrels and reversing the movements. The ball B unscrews and reveals a small chamber for leads.

These pens and pencils are manufactured exclusively by Wm. M. Willmarth, 44 Maiden Lane. Mr. W. was formerly of the old firm, and chief manager of the house of Addison, Willmarth & Co., which is sufficient guarantee for the workmanship of whatever comes from his hands.

Fig. 1

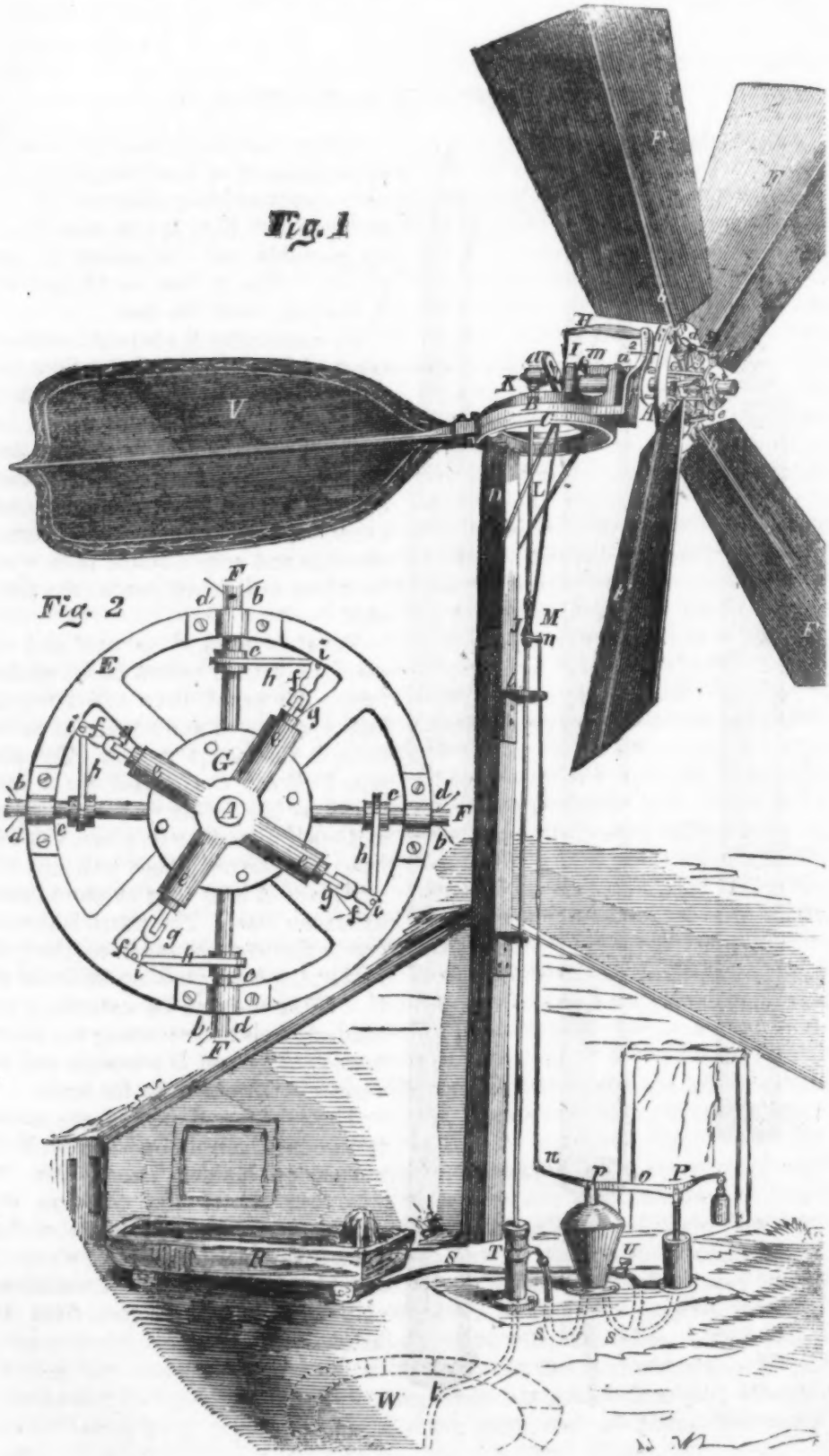


Fig. 2

HALLADAY'S WIND-ENGINE.

On another page the reader will see a picture of a Wind-Engine, which is now gaining popular knowledge and favor, lately patented by Mr. Halladay, of South Coventry, Ct. A company has been formed for the manufacture of this Engine, called the Halladay Wind-Mill Co., having a large shop in the place above mentioned. The mills are constructed of different sizes to suit the wants of purchasers, or rather to give any desired amount of power, varying in prices according to size, from $75 to $275 each. We have seen one, yet standing at the factory, of four horse power, furnished with a regulator to equalize its speed, such as is in common use in cotton mills to regulate the speed of breast wheels. The cost per horse power for a wind-mill is about the same as the cost per horse power of a steam engine.

The patent of Mr. Halladay has reference to the mode of regulating the speed of the engine. It is by a device peculiar, ingenious, and simple, that the wings of the engine are gradually turned around so as to change the angle of the fan in the face of the breeze, making the plane of the wing now nearly parallel with the line of the storm, as the storm or wind increases, and in the same proportion diminishing the speed. An inspection of fig. 2 will show how this motion is given to the wings. F F are the stems to the wings. G is an aparatus, around the cylinder, into which the wings are inserted. This aparatus, G, by a bar, H, turns the stem of the wings, so as to bring the plane of the wings at any angle with the line of the wind. When the wind is strongest and speed begins to increase, the fixture, G, is changed, and hence the angle is changed. The engine of the cut is working a pump. The regulator, giving motion to G, is found in the orifice of the water pipe. Any other regulator can be used to give the proper motion to G. We wish it to be distinctly understood that the peculiarity of this engine is found in its aparatus to regulate its speed. The great reason why wind power has been so little used heretofore is, that the power was irregular and uncontrollable. When the wind was high, the engine was straining, and cracking, and breaking. When the engine was suited to a strong wind, it ceased to work at the instant the wind lulled. Because of this variableness and inconstancy, wind power has been but little used. Along on the sea-shore, where water power could not possibly be had, efforts have been made to apply wind power to the grinding of meal. Yet these mills have always been abandoned the moment more regular power could be secured from the water. But wind power can always be had just where we want it, which is not the case with water power. Wind power is also both cheaper and safer than steam power. A wind engine uses up no cash to keep it going as steam does. When the difficulties referred to are overcome, wind power will be used every where. To do his *pumping*, and *threshing*, and *sawing wood*, *churning*, and so forth and so forth, every farmer wants a small power, such as can be economically secured by the Wind Engine. And the blacksmith, and wheelwright, and carpenter, etc., etc., wants one or more horse power in his business, cheap and durable, as is given by the Wind Engine. The Company owning this patent, are receiving large orders at their factory, and they are prepared to fill them reasonably and rapidly. The American mind is not slow in detecting advantages which may be offered by new inventions, and it will soon clearly ascertain how Mr. Halladay's invention can be used to advantage.

AMES' UNIVERSAL SQUARE.

THE annexed engravings represent a "Universal Square," for which a patent was granted to Nathan Ames, of Saugus, Mass., July, 1852, but which has not been brought before the public till very recently. This square is simple, and combines in a convenient form five useful instruments, viz., the "Try-square," the "Miter," the "T-square," the "Graduated Rule," and the "Center-square," for finding the center of a circle.

Fig. 1 is a perspective view of the instrument; fig. 2 shows the method in which it is applied as a center-square for centering a circle; fig. 3 shows the different ways in which it is applied as a miter, and fig. 4 shows the application of the instrument as a T-square, a try-square, and a graduated rule.

In the Patent Office Report for 1852–3 is the following description of the instrument, and its application as a center-square:

"The general principle on which the instrument is based is well known to geometricians, viz., that if two tangents (or straight lines touching the circumference of a circle) be extended till they intersect each other, a straight line bisecting the angle between them will pass through the center of the circle. The instrument consists of two arms, A B and A E, fig. 1, placed together at right angles to each other, in the manner of a carpenter's square, but of equal thickness, and having their surfaces 'flush,' upon the upper surface of which arms a straight ruler, D A, is fixed at its end in such a manner as to have one of its edges at the inner angular point of the arms, and that edge extending midway between them, or bisecting the angle between them. The ruler can be braced firmly by a bar, B E, running across between the extreme ends.

"If the mechanic wishes to find the center of a circular wheel, he places the instrument upon it, fig. 2, with the two arms both resting against its circumference, in which position the edge of the ruler will run across its center. A straight line is marked in this position, and the instrument is again applied to another part of the circumference, so as to mark in the same manner another line intersecting the first. The point of intersection is, of course, the center of the wheel. The whole is the work of a moment."

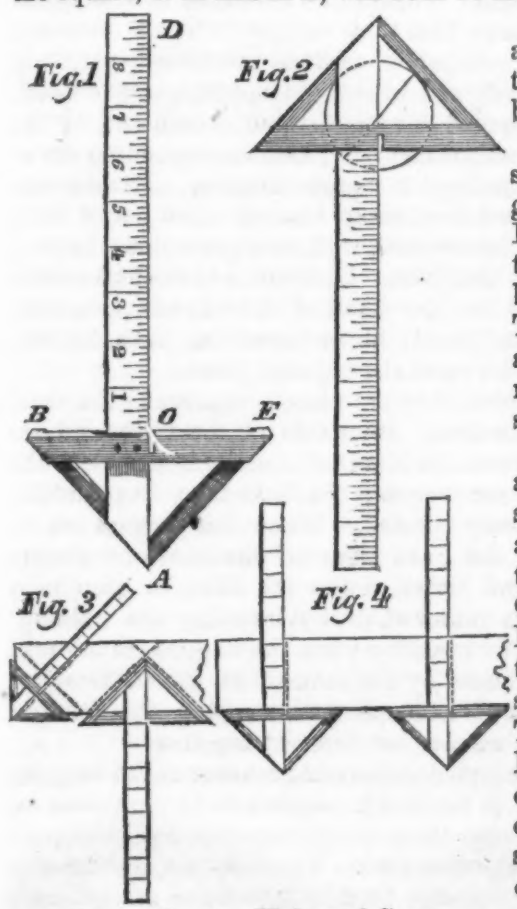
The first claim of the patent is for the application to an instrument of the geometrical principle alluded to above; and the second for the union of the above with the common trying square by means of the bar, B E.

At O, fig. 1, is a slot in the bar, B E, to admit a scratch-awl, or the point of a knife. This slot is also cut out in such a manner on the under side, that the point of the marking instrument may pass under the bar, making a continuous mark, whenever it is desirable, from D to A.

As a center-square, alone, the instrument is invaluable to every mechanic.

A glance at fig. 3 will explain the different ways in which the square may be used as a miter. Simply placing the instrument over a square corner to be mitered (as seen at the left of the figure,) without any adjusting by the eye, is sufficient; the tongue cannot fail to bisect the angle. By mitering both corners, the longitudinal center may also be readily found, the point where the two lines intersect being equidistant from the two edges. The point where the tongue leaves the edge of the board will also be found to be just the width of the board from the end.

Or, again, as seen at the right of fig. 3, there are two miters more. The cross bar, B E, fig. 1, resting against the edge of the board, the two sides of the square, B A and A E, will both be miters.



The application of the instrument as a graduated rule, T-square, and try-square, will be easily understood by inspecting fig. 4.

As a T-square, it is peculiarly strong, and free from liability of getting out of true. The tongue, D A, being fastened, as it is, into the triangular frame, B A E, cannot be moved or knocked from its place. The same remark, of course, will also hold in regard to the instrument both as a miter and try-square.

It is also obvious that there are other ways than those represented in fig. 4 in which it may be applied as a try-square. That portion of the tongue between D and O, with either half of the cross-bar, B E, forms a complete carpenter's try-square, and may be used as a substitute for it in every instance. The outside of the frame—the angle, B A E—is also a perfect square, and often very convenient. In short, it combines, in a most convenient form, so many useful instruments, no mechanic's list of tools can well be complete without a Universal Square.

We believe this to be a capital invention of great practical utility.

More information in regard to the instrument may be obtained by letter addressed to the patentee.

COUPLING GEAR FOR RAILWAY CARRIAGES.

By Messrs. Taylor & Granstoun, *Morayshire Railway, Elgin.*

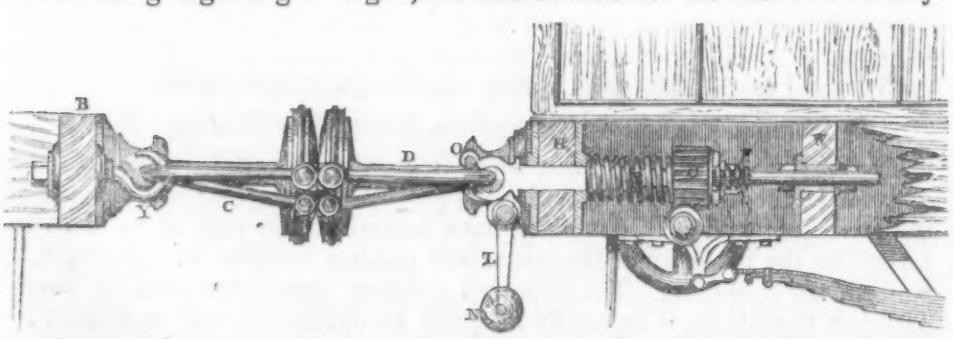
Travelers by railway must have frequently observed—with some annoyance at the delay thus caused—the process of coupling and uncoupling the carriages; and will, doubtless, have remarked the risk of accident incurred by the necessity of the attendants passing between the carriages to perform the operation. The improved coupling gear introduced by Messrs Taylor & Cranstoun, is especially designed to obviate all such accidents, by doing away with the necessity of having to pass between the carriages or wagons when coupling or uncoupling them; whilst, at the same time, such operations may be accomplished by means of this gear with much greater facility and speed than by the existing systems.

Each carriage or wagon, in addition to draw-hooks, has attached to it three parallel-jointed engaging chain-links, freely hinged, so as to be capable of being raised or lowered at pleasure. These links are made with a central back stop-joint, in such manner, that whilst they will act with all necessary flexibility when drawing or being shifted in certain directions, yet, when lifted by the elevating lever, they will rise in a rigid condition, as if solid. Such draw-links may either be disposed in sets of three at each end of the carriage or wagon, or they may be at one end only, with corresponding draw-hooks at the opposite end of the carriage or wagon framing. A transverse coupling or elevating shaft is disposed in bearings beneath each set of links —this shaft having upon it a lever frame-piece, with stud projections thereon, for the purpose of giving the lift to the links. Each end of the shaft carries a hand lever conveniently disposed for the hand of the attendant, so that when passing along the train he can quickly lift or lower the links, holding pins being provided for setting the levers at the required point.

When the wagons are to be coupled, they are placed together in the usual manner; the attendant then passes along either side of the train, and removes the holding-pin (which supports the links sufficiently high to clear the three corresponding hooks on the next wagon;) the links then drop, and the necessary engagement is thus instantly effected. When the wagons are to be uncoupled, the attendant lifts the links clear off the hooks by simply pressing down the hand-lever, and either allows the links to drop to a vertical position when the wagon is removed, or, by inserting the holding-pin, the links are fixed in a position for coupling when the wagons are brought together, which can instantly be effected by the removal of the holding-pin, as already described. The action of uncoupling, thus places the links in position for coupling whenever the wagons are brought together.

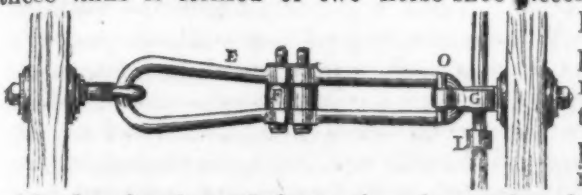
The carriages are coupled or uncoupled in the same manner as the wagons, with the exception that the center or draw-link requires to be tightened up after the carriages are coupled, to bring them closely together, and slackened off sufficiently when they are to be uncoupled. To effect this, a transverse hand-wheel shaft is fitted upon the carriage frame; the center of this shaft having upon it a worm gearing with a worm-wheel set on a longitudinal nut-link of the draw-hook spindle. Hence, by turning one or the other of hand-wheels, the draw-link is tightened or slackened as required. This gearing may be modified in various ways; for instance, the worm-wheel may itself be made to answer as the tightening nut.

The details of this improvement will be better understood by reference to the following engravings. Fig. 1, is a side elevation of the ends of a railway



carriage, with the coupling gear attached. Y is the coupling of one car to that adjoining, the ends of which are represented at B and H. There are three inner engaging links, side by side, fig. 1 exhibiting the side view

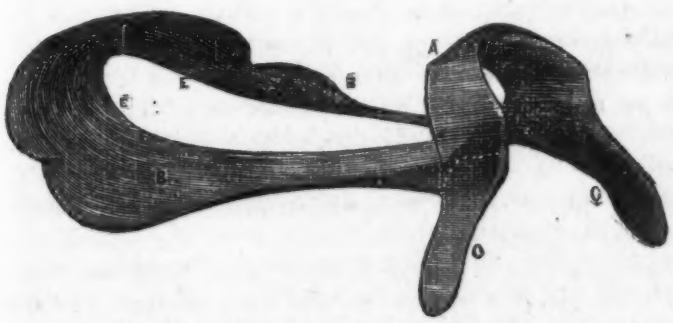
of the outer one, while fig. 2 represents the appearance of the inner one as viewed by looking down upon it from the platform of the car. Each of these links is formed of two horse shoe pieces, E, connected by short joint links, T, in fig. 2, and by pins passing through the links at F, through eyes formed in the ends of the horse-shoe pieces. The outside engaging links, C, are connected with the framing of the carriage by passing through eyes in staple link, H, fig. 1, bolted to the frame. Immediately below the links, C, E, etc., is a shaft, seen at L in fig. 2, the end of which appears above L in fig. 1, bolted transversely to the frame. On this shaft, as at L, in fig. 2, levers are fixed to play underneath the links, but not here shown. These levers, with the shaft, are moved by a crank-handle, as at L, fig. 1, so as to elevate or depress the links, as may be required, to hook or unhook the links, as at C in fig. 1, and E in fig. 2, to the adjoining car.



SADDLETREES.

GEORGE M'NAUGHT, *Glasgow.—Patent dated September* 23, 1854.

BY the process adopted by Mr. M'Naught in the manufacture of saddletrees, increased strength is secured, together with economy in the material used, and in the labor required in making such articles.



Our engraving is a side elevation in perspective of a saddle-tree, as made according to this system, and covered or canvassed in the usual manner. The portions of the saddle-tree to which the invention more especially refers, are the semicircular or curved head piece, A, and the two twisted side bars, B. According to the ordinary system of making saddletrees, the head is generally made in two portions, each portion being in one piece with one of the downward projecting side pieces, C. These two portions of the head piece are each shaped out of solid pieces of wood, by splitting, chopping, and cutting away the superfluous portions of the wood, to bring it to the proper form. According to this mode of proceeding, a considerable portion of the material is cut to waste, and the labor required is excessive. Now, the portion of this invention relating to the head of the saddle tree, consists in forming the semicircular part, A, out of a piece of wood, which is first cut to the necessary thickness in a flat state, and then, after being steamed, or otherwise prepared, is bent to the required semicircular or curved form, by means of screw presses or other suitable machinery, such

as is used in other manufactures for bending wood with the aid of steam. Or, instead of forming the head piece, A, of a single piece of wood of the full thickness required, it may be composed of two or more thin pieces, bent and glued, or otherwise attached or bound together, to give the required thickness. Similarly, whilst the side bars, B, are brought into the required form, according to the ordinary system of manufacture, by cutting away portions of the wood so as to give them a twisted shape,—under the improved system they are first cut to the necessary thickness in the flat state, being afterwards twisted by means of suitable machinery, after being steamed or otherwise prepared, so as to bring them to the twisted shape required in the construction of the saddle-tree, as indicated in the figure. The back, D, of the saddle tree is made in the usual manner, and the several pieces, A, B, C, D, being glued or otherwise connected or joined together, the corners, E, are filled up with separate pieces, so as to economize the width of the wood, out of which the side bars, B, are formed, and filling-up pieces are fitted in the usual way, on the inside of the pieces, A and C. The saddletree is finished externally in the usual manner, by being covered with coarse canvass, and washed with glue, or otherwise prepared. We have thus far only referred to the manufacture of saddletrees for the ordinary description of men's riding saddles; but it will be obvious that the invention, or a part of it, is equally applicable to the manufacture of other varieties of saddletrees. Thus, for example, the side bars of saddletrees for ladies' or side saddles, as also those of saddletrees for military saddles, may be made according to the improved system of manufacture, as already described.

American Patents.

FLOCK RENOVATOR.

An ingenious machine has recently been constructed by Mr. Charles Holt, of Stafford, Ct., for renovating the flocks used in the manufacture of woolen goods. It consists of a cylinder, fourteen inches long and twelve in diameter, covered with cast-iron plates, on the outer surface of which are small conical teeth, one half inch in length. This cylinder revolves about 200 turns per minute, in juxtaposition to an apron of iron, between which and the rotating cylinder the flocks pass, and from which they fall. While falling, they are pervaded by a strong tide of air from a blower, which runs about 800 turns per minute. By the wind of the blower the flocks are carried out through a prepared orifice, while other more ponderous and foreign matters fall under the machine. In this manner the flocks are renovated. The machine is made of iron, and costs about fifty dollars. It is simple in construction, occupies but little space, and is not easily put out of order. It is used by many manufacturers around Stafford, and is highly valued by them. It cannot fail to become greatly popular among those who use flocks in making woolen cloths, to whose inspection we cheerfully commend the machine.

ARTHUR'S PATENT SELF-SEALING CANS.

These cans, invented by Dr. Arthur, of Philadelphia, are much the most convenient article for putting up all kinds of fruits that we have seen.

They are constructed with a channel around the can near the top—which is filled with adhesive cement that softens sufficiently to admit the cover when the fruit is put in hot; br the cover may be heated and passed into it, and warming the can will allow the cover to be taken off without injury. They have been well tested, and being manufactured with the cement in the channel ready for use, the process of hermetical sealing becomes simple and within the reach of all good housewives. The process of sealing and unsealing these cans is very simple, and as the lid covers the whole top of the can, it can be cleaned and used again.

GUANO SPRINKLER.—The machine bearing this name has been constructed by Mr. Ira Dimock, a machinist and farmer, in Uncasville, Ct., and while it meets a want felt by the farmer and gardener, it also shows much ingenuity in the builder. The plan of the sprinkler is suggested in the common city watering cart. A cask having one head, and being the size of a common barrel, is fastened head downwards upon a pair of wheels, which are united to an axle as long as the distance between two rows of corn. From the lower end of this cask projects a pipe made of tin outward and faced backwards, about four inches in diameter, and about twelve inches in length. Across the end of this tin pipe another is placed, about four feet long, also made of tin, having a line on its under surface thickly perforated with small holes. A gate is made to fit over that end of the shorter pipe which is inserted in the barrel, by which the contents of the barrel are shut out from the pipes, or by raising which the contents are admitted to the pipes, and thus sprinkled upon the garden. When using the sprinkler, Mr. Dimock mixes the guano in the water, with which the barrel is filled, in due proportion. Then he trundles the machine out into his field, and pushing it forward at a chosen speed, and opening the gate at the lower end of the barrel, the guano, in proper quantities and equally, is placed upon the ground and becomes mixed with the soil. No patent has been applied for on any part of the sprinkler.

PERCUSSIAN WATER-WHEEL.—A water-wheel bearing the name of Percussion and Reäction water-wheel, has been constructed by Messrs. Fairman, Cushman & Co., of West-Stafford, Ct. A wheel built after their patent is now in operation near their premises, and larger wheels than the one in use are in process of construction. The inventors claim that thus far in their labors they have gained many advantages over the Turbine, and they anticipate greater advantage from future experiments and improvements. These advantages have reference primarily to economy of power, and then, as a secondary end, economy of space. Many persons of experience in using and building iron water-wheels, speak of the Percussion as being greatly superior to any wheel within the limit of their acquaintance. Time will test the correctness of their opinions.

Felly-Sawing.—A great improvement in the mode of sawing fellies has lately been made by Mr. J. Knap, who is connected with the celebrated carriage and axle factory of Messrs. Mowry & Co., Greenville, Ct. The improvement consists, in part, of having two saws, standing in such position that one saws the inner and the other the outer edge of a felly at the same time. The other and most important improvement consists in making the platform, upon which the plank to be sawed is placed, rotary; and in making its outer edge to rotate in a circle, exactly answering to the circumference of a wheel. The plank to be used is fastened by a simple screw-clamp upon the platform, which by the sawer is made to move against the teeth of the saw, and with a circular motion. A central fastening to the platform is easily made, so as to guide its motions exactly, and so as to be comparatively free from friction. The whole improvement is very simple and economical, and it is easily applied and worked. The work turned out is almost exactly fitted for the spoke. Mr. Knapp has been very successful in his improved felly-saw.

Improved Water-Wheels.—That veteran inventor, Simon Fairman, Esq., of West-Stafford, Ct., is engaged in making improvements on water-wheels. No improvement is matured sufficiently to make it public, and no one will come up to the satisfaction of the inventor, which will not come up near to the giving of cent per cent of the water. The aim is high, though it will not probably be fully attained; but talent and genius, both of which he possesses in a remarkable degree, will do their utmost in this direction, and we may quietly wait for very important results.

English Patents.

An Improved Cement Applicable as a Plaster, or for Moulding Purposes.—This invention has for its object the production from chalk or limestone of a cement or plaster, which will set somewhat after the manner of plaster of Paris, but will attain a much greater degree of hardness, and, when manipulation is required, will allow more time to the operator to work to a surface, and, moreover, will not be liable to injury from damp or rain.

The improved process for the manufacture of cement consists in subjecting limestone to a further heating in contact with the products of combustion of coal, coke, and substances of a like nature.

In carrying out his invention the patentee proceeds in the following manner:—The chalk or limestone is first burnt in a kiln, to produce quick-lime, by any of the methods ordinarily practised; after which, the quick-lime is subjected to a second heating, at a dull red heat, in the presence of an atmosphere created by the combustion of carbonaceous fuel.

A convenient mode of doing this is to make use of a kiln of a reverberatory form, with the fuel arranged on bars at its bottom, and the previously calcined quick-lime placed at a short distance from it; this distance and the draught being so arranged that, when the fuel is undergoing combustion, the lime may not be heated too highly, but yet sufficiently to take the appearance of a dull cherry red. Should the heat maintained be too great, the

lime will remain in the ordinary state of quick-lime; or, if it has previously acquired the property of setting, as above described, and then the heat be urged too far, it will again lose it; also, if the lime show no sign of incandescence, the process will be quite ineffective for the purpose intended. Unless, therefore, care be taken that the temperature to be maintained, during the second heating operation, be neither too high nor too low, the lime will, when made into a paste with water, still behave in the ordinary manner of common quick-lime; that is to say, instead of hardening into a solid coherent mass, it will either fall to a powder, or, if mixed with more water than is sufficient to convert it into a hydrate, it will dry up into a shrivelled cracked mass. Instead also of solidifying when immersed in a pasty state in water—as is the case when it has undergone the above-described process in a proper manner—it will quickly fall abroad.

This heating of the lime in the presence of an atmosphere derived from the burning fuel, is continued for twelve hours, more or less.

Although the processes, as will appear from the foregoing, is chiefly applicable to limes prepared from chalk, or the ordinary purer limestones, yet the patentee does not confine himself to these. Limes possessing weak or moderate hydraulic properties may thus be converted into cement, much better suited for many purposes than when in their ordinary state. When, however, these properties become so developed as to set quickly when burned in the ordinary manner, it it obvious that it would be useless to adopt a more expensive one.

The prepared lime, when removed from the kiln, will usually be found to have reäbsorbed a small amount of carbonic acid.

When removed from the kiln, the lime is reduced to a power, and packed in air-tight casks for the market. A similar effect to that above described may likewise be produced in an ordinary lime-kiln,—the limestone being converted into quick-lime, and then subjected to the foregoing second heating process in one continuous operation. This mode of effecting the desired change is, however, very precarious, and attended with great difficulty. When it is attempted, the quantity of fuel must be greater than in ordinary lime burning; and as soon as the conversion into quick-lime has been accomplished, the temperature must be reduced by a proper regulation of the draught, so as to comply with the above specified conditions.

In using the cement, care must be taken to wet the surface to which adhesion is required to be made; and it is advisable even to rub into it some of the stuff, thinly mixed, before laying on the mass. The cement, when wet, should be wetted at intervals during the first day.

Ornamental castings may be immersed in water for a few minutes after the cement has solidified; and care should be taken that the thickness of a coating be no greater than necessary, as the tendency to heating, after it is made up, though greatly modified, is not entirely destroyed; and this property, when the cement is in bulk, might endanger its safety.

When used as a plaster, it may be mixed with a proportion of chalk in the ground state; it will not then give so strong a resistance to a transverse strain, but may still be worked to an excessively hard and well-polished surface.

When used externally, or as a pavement, it may be washed over with a solution of silicate of potash or soda, as this increases the hardness of the surface, and renders it more impervious.

Court of Inventions at the Crystal Palace.—Inventors, and those interested in inventions, will be glad to learn that the directors of the Syden-

ham Palace have opened a court of inventions as an addition to this magnificent exhibition, and they invite contributions of models and drawings of new inventions. The great advantages of such an arrangement are to be afforded to exhibitors free of all charge for space, the articles being, of course, delivered at the palace carriage paid. We believe many parties who were exhibitors at the recent exhibition of the Society of Arts, having had circulars addressed to them by the directors, have transferred their models and drawings to the Crystal Palace, thus availing themselves of this opportunity of keeping their inventions prominently before the public. We have no doubt that the arrangement will be received as a boon by a great number of publicity-seeking inventors, and it is to be hoped, that in the Crystal Palace the inventions will stand a chance of being seen by others than mere rival inventors, for it too often happens that few parties visit exhibitions of inventions but inventors themselves, and they are, of course, each too engrossed with his own particular models or drawings to pay much attention to rival productions.

Robinson's Screw and Slide Lever Steering Gear.—A simple, powerful, and apparently durable steering apparatus for ships, has lately been patented by Mr. John Robinson, of North-Shields, and worked out by the well-known makers, Messrs. Pow and Fawens, of that place. In this arrangement, the steering wheel is set a little out of the keel line of the ship, on the port side; and its spindle, which is carried in two end pedestal bearings, is cut with a stout square screw thread. This screw spindle has upon it a long traversing nut, fitted with a pair of diametrically opposed joint stud pins, for connection with the end of the sliding lever, which forms the actual tiller. The joint end of this lever is made with a fork and straps, for embracing the stud pins of the nut. The remaining portion of the lever is a plain cylinder, and it is entered freely through a long inclined eye-piece on the rudder-head, which is, of course, on the starboard side of the screw spindle, and opposite to the longitudinal center of the latter. The eye on the rudder-head works on a stud pin, so that, in all circumstances, the action is easy and free from strain. As the screw spindle nut traverses forward or aft, in obedience to the turn of the steering wheel, it carries with it the outer end of the tiller, which thus acts as a lever to turn the rudder; and as the nut must always move in a straight line, the sliding tiller traverses back and forward in the eye of the rudder-head, to reconcile the right line action of the nut with the rotatory action of the rudder-head. The effective leverage of the tiller thus becomes greater as the rudder is moved from amidships to either the starboard or port side, and hence the steersman's power is increased in proportion to the external fluid resisted.

Flax and Plantain Fibre for Paper-Making.—A bill for the incorporation of an undertaking, to be called the Fibre Company, for supplying the serious want of a cheap material for paper by means of the fibre of common flax, is now before Parliament, after vain endeavors to avoid the trouble and expense of going there by obtaining a charter of limited liability. The West India plantain, too, has been called to the paper-maker's aid. This was noticed, a few nights back, in the House of Lords, by the Earl of Derby, who produced some specimens of the raw and manufactured articles. These were a specimen of the fibre of the plantain, (*Musa Paradisiaca,*) and a specimen of a textile fabric, of silky appearance, manufactured from the fibre; a specimen of the fibre of the *Hibiscus Esculentus* (Okhro:) a specimen from the

seed-pod of the *Cryptostegia Grandiflora*, suitable for india-rubber withe. The body of the plant yields gum caoutchouc, and the bark of the branches a fine fibre. Also, two specimens of paper made from the plantain fibre; one specimen rough and unbleached, to show the great strength and tenacity of the fibre, and another specimen, of very good quality, bleached and carried through all the operations for the best paper. Paper made from the plantain fibre, and of an excellent quality, can be supplied at a cheaper rate than that made from rags. The abundance of the material is naturally an important element in the question. On one estate in Demerara, there are cut down 160,000 plantain trees every year, merely for the purpose of clearing. All these trees contain fibre capable of being manufactured into textile fabrics, or rope of various degrees of tenacity, or paper. The inventors have obtained a patent, and have made application to the Legislatures of Jamaica and British Guiana, and in both these colonies this invention has been made the subject of specific notice in the Governor's speech. The process and the machinery employed have been examined by committees of both houses of Parliament in these colonies, and their reports have been most favorable to the undertaking, so that the measures necessary to carry out the project have been passed at the public expense. If the Government could do anything to promote a manufacture which finds an inexhaustible quantity of raw material to meet a demand that is unlimited—for hemp, for textile fabrics of various kinds, and, last of all, for paper cheaper than could be formed of rags—and if these articles could be produced in colonies that have suffered such great distress, they would do much to introduce new prosperity into these colonies from a new description of industry. The matter is one of no ordinary importance, and it was well deserving the attention of the Government.

Maynard's Combined Threshing and Dressing Machine.—A new agricultural machine, contrived for effecting the better separation of the chaff and cavings from grain and straw as threshed, has lately been introduced by Mr. R. Maynard, of Whittlesford, Cambridge. The plan which Mr. Maynard has followed out in his new design, has been copied from that in common use by every hand-tasker, who, when he wishes to make up his corn so as to produce chaff fit for the chaff-house, fills his riddle from the rough heap, and, after a few shakes, returns and sifts out the remaining corn on the same heap, instead of continuing the process till the corn is clean sifted out; by this method the roughest is re-sifted, and the chaff left in the corn is free from cavings. This is precisely the principle embodied in Maynard's machine, in which, instead of sifting quite down, as is done in most machines, only the first produce of the riddles is subjected to the dressing blast, while the remainder is continually being returned and mixed with the fresh proceeds of the drum, and the result is a separation of the chaff as perfect as is generally obtained from hand-sifting. This machine also prevents a waste of corn with the chaff, by returning the tail, or that portion which is blown out with, and falls short of, the chaff, and submitting it to a repetition of the process; by this means the whole operation of dressing is done without permitting any portion of the corn to fall on the ground, and it is finally delivered by self-acting apparatus into sacks. The machine is peculiarly smooth in its action—this result being obtained by springs, and by making the two riddles balance each other. Mr. Samuel Jonas, the well-known Cambridgeshire agriculturist, has adopted the new machine, and speaks highly of its work.

Improved Pavement, Roofing, Footways, etc.—The following is the

mode of preparing the mastic or cement:—Put into a cauldron, on a fire,—1st, natural mineral bitumen of Bastennes or any other country; 2d, natural asphalte (the bitumen and asphalte are employed in the usual well-known proportions;) 3d, when the asphalte and the bitumen are melted and well mixed together, add to them, instead of sand, a suitable quantity of mineral ore of iron, or ore of other metal, in powder more or less fine; 4th, boil the whole until the matter is in a fit state to be employed. It is as well, first, by washing, to free the minerals or ores from all foreign matters which may adhere thereto; 2dly, to add to the mastic a suitable quantity of oil of resin, or of any other oil of the same nature, not exposed to the inconvenience of drying, so as to give the mastic all the requisite malleability; but these two conditions are not indispensable. The powders of the different minerals or ores may be replaced by filings of iron, or of cast iron, or of any other metal, either by powder of iron, cast iron, or any other metal prepared by special manufacture.

The natural asphalte may be replaced by carbonate of lime in powder; but in this case it is useful, although not indispensable, to compensate for the natural bitumen of asphalte, which is found wanting in carbonate of lime, by a proportionate increase of the quantity of bitumen of Bastennes, or other country, or by a proportionate quantity of oil of resin, or any other oil of the same kind.

After having substituted, for natural asphalte, a carbonate of lime, gastar or pitch can also be substituted for the natural mineral bitumen of Bastennes; but in this case, to compensate for the too great volatility of the oils from these materials, it is necessary to mix with the mastic a suitable quantity of less volatile oil, such as oil of resin, or of the like nature. This cement may be employed for buildings, coatings, roofings, metallic sheetings, roads, streets, or footways; in a word, for all purposes where cements or mastics are necessary: it may even be employed for painting all materials. For roads, streets, or footways, it may be employed alone, or in the form of concrete, or with iron or wood in the form of frames, or any other form. The forms preferable are those having the form of an 8, formed by simple bands of iron in the form of T, or the form of unequal and irregular corrugates, fluted, grooved, or indented sheets. These corrugations, flutings, grooves, or indentations, should be unequal in size, that is to say, that each upper corrugation, etc., should not be so large as the lower. The angles of the corrugations, etc., may be right-angled; but it is preferable that the angle should be slanting inwards towards their bases, so as to form more or less acute angles with the base. The corrugations may also receive a more or less conical form. The upper corrugations, etc., may even be rounded. The sheets of iron may be simply undulated, the undulations being more or less deep.

Modern Rail-Bar Rolling.—The Rhymney Iron Works Company has just rolled the largest railway bar ever produced. It is one of Barlow's patent rails, and has been sent to the Paris Exhibition. Previous to the appearance of this example of such rolling, a 22 feet rail was the ultimatum, but the Rhymney Company has gone, at one stride, to a length of 52 feet 6 inches. Mr. G. P. Hubbuck, the managing engineer of the works, conducted the operation, and he has made such excellent work in the present instance, that the rail has not been painted. It is simply brushed over with oil to repel the attacks of rust, and in this condition it will make its appearance in the great show of France.

THE ERIE RAILROAD.

This is an immense work. Its great extent, reaching 461 miles, from New-York to Dunkirk, is not more remarkable than the immense labor required in its structure in numerous places, or the unrivalled scenery which it constantly opens to the traveler. Its management exhibits the same untiring energy and ceaseless watch, guarding the immense number of passengers conveyed over it from accident, and inspiring them with a feeling of security not felt on other roads and under a different system. The conductors are attentive to the wants of all, and are just what they should be.

We have recently passed over portions of this road for the first time, and never have we seen greater variety of attractive landscape, in a day's journey in the cars, and perhaps cannot point out more remarkable scenery than this ride brought to our view. We had intended a detailed reference to some of these localities in the present number, but we find that our space is already occupied, and must defer it till our next issue.

THE NEW-YORK CENTRAL RAILROAD.

This road extends from Albany to Buffalo, and now includes, also, on the same management, a branch to Niagara Falls, viz., the Rochester, Lockport, and N. Falls Division. This leaves the main road at Rochester. This road conducts the traveler through one of the most flourishing portions of the country. It passes by Schenectady, Utica, Rome, Syracuse, Clyde, Palmyra, Rochester, etc., a distance of 298 miles. At Utica it connects with the Black River and Utica R. R., now completed to Trenton, a distance of sixteen miles. This is the proper mode of reaching that delightful and imposing spot, Trenton Falls. From the cars you are conveyed two miles by stage to the hotel at the Falls, kept by Mr. Moore, where the traveler finds everything furnished him that he could reasonably expect, and of the very best quality. No table that we saw on our recent tour was served in better style than his. We would have been delighted to make it our home for many days.

But we must say one thing in relation to the Black River and Utica R. R. If they expect the visitors to the Falls to build their roads, they are doing perhaps as well as could be expected. But if they suppose that travelers will pay seventy-five cents for riding eighteen miles, in these days, without thinking themselves imposed upon, they are probably much mistaken. The regular and uniform charge upon the Central Railroad is but two cents a mile, while here it is more than double that, and though the total is small, the rate is as exhorbitant as if the road extended a thousand miles. For this, however, the Central road is not responsible. *They* attend to their own road, and do all that the public have a right to ask. All the conductors are gentlemen, and understand the wants of the traveler, and do all they can to supply them. It is a pleasure to fall into such hands. We shall take occasion to refer again to this road hereafter.

RAILROADS IN FRANCE.—The total length of railroads opened and in use in France at this time is 4,975 kilometres, (3,091¼ miles,) made up of the following roads of the length annexed:

Names.	*Kilometres.*	*Miles.*
Northern Railroad,	707	439¼
Anzin and Somain,	19	11¾
Paris and Strasbourg,	863	536
Montereau and Troyes,	100	62
Western Railway,	258	160¼
Paris and Rouen,	139	86¼
Rouen and Havre,	92	57¼
Rouen and Dieppe,	51	31¼
Paris and Orsay,	25	15½
Grand Central,	215	133½
Orleans and Branches,	1,155	711⅛
Paris and Lyons,	555	344¾
Lyons and Mediterranean,	528	328
Southern Railway,	251	156
Cienture (around Paris,)	17	10½
Total	4,975	3,091¼

The average gross receipts per kilometre of all the railways for the first six months of the current year ending 30th June, is 23,686 francs, which is equivalent to $7,132 50 per mile. This is a difference of 13.97 per cent. in favor of this year over the same period of last year, 1854. The most profitable roads are the Paris and Lyons road, of which the gross receipts during the six months were 35,051f. per kilometre, the Grand Central 31,914f. per kilometre, and the Northern Railway, 30,524f. per kilometre.

There are upwards of five thousand kilometres more of railways in France now in process of construction or conceded and soon to be commenced.—*Paris Correspondent of the National Intelligencer.*

SMOKELESS FURNACE.—We have during the week inspected an entirely new arrangement of steam boiler furnace, in action, on a 25 horse-power boiler, at the granaries and flour mills of Mr. Edward Gripper, Winchester wharf, Southwark. The principle of construction is that of mechanical motion applied to the bars, but different to anything yet introduced. Every alternate bar is so connected with a cross-piece at each end as to form one entire movable frame, which is connected by gearing with the motive power. The motion given to it is angular; first, the bars rise very slowly about an inch above the stationary ones, they then move gradually in a lateral direction towards the bridge, again sink in a vertical direction about an inch below the other bars, and then move laterally forward to their original position. What are termed the stationary bars are not fixed as usual, but hung in such manner as exactly to balance the vibrating frame with the load of fuel which it has to move, thus taking but little power from the engine to keep them in motion. The fuel is fed through a hopper and regulating incline plane, and the whole is self-acting, requiring but little attention from the stoker. We were informed that this apparatus had been in constant use about six months, that no difficulties whatever arose from the mechanical motion; there was an entire absence of clinker, nearly perfect combustion of the fuel was effected, and during our visit not a particle of smoke was visible from the chimney. Mr. Gripper estimates the saving of fuel alone at about 10 per cent., besides numerous other advantages.—*London Railroad Journal.*

A NEW ENTERPRISE IN SALEM.—Among the contemplated enterprises of the coming year in Salem, the *Gazette* says, is to be the building of a large iron ship, of about 800 tons, by Mr. James Tetlow, a skilful machinist, who came there several years ago from Providence, R. I., and whose workshop is in the yard of the Naumkeag Steam Cotton Company. It gives the following particulars of the undertaking:

The iron ship which Mr. Tetlow has contracted to build, is for Capt. Thomas McKenney, of Newburyport, and is to be employed in the South American trade. Her hull is to be entirely of iron, to be constructed in five sections, with iron bulkheads between, so that either section will suffice to float the ship in case of disaster. One of the sections might be entirely stove in by such a disaster as occurred to the Arctic, without any danger of the ship's sinking. She is to be called the "North Star." Capt. McKenney has found that wooden vessels employed in this trade are ruined by worms in a very short time. Mr. Tetlow expects to be about thirteen months in getting the ship ready for launching. He is now gathering materials, and the powerful and expensive machinery necessary for his purpose, and during the winter will be preparing the ribs and keel, which will be set up in the early spring.

A SUBSTITUE FOR SILVER.—A wonderful discovery is announced as having been made recently by a French chemist, M. Deville, to-wit: a new, easy and cheap method of separating *aluminum*, the metallic base of common clay, from the other constituents. This metal rivals in beauty pure silver and surpasses it in durability. Hitherto it has existed only in small quantities, and has been esteemed rather as a curiosity, the price in France, a short time since, being about the rate of gold! But by Mr. D.'s improved method it can now be produced in masses sufficient and cheap enough to replace copper, and even iron in many respects, and thus place the "new silver" into such common use as to suit the means of the poorest persons. These facts are gathered from the *National Intelligencer*, which also adds: "Among the many remarkable qualities of aluminum are its resistance to oxydation, either in the air or by acids, its hardness, its wonderful lightness, its malleableness, the facility of moulding it, &c., Mr. Dumas mentioned (before the Paris Academy of Science) another, its sonority. An ingot was suspended by a string, and being lightly struck, emitted the finest tones, such as are attained only by a combination of the best metals."

MICROSCOPIC PHOTOGRAPHS.—Some microscopic photographs exhibited at Manchester, Eng., the other day, excited much admiration. One, of the size of a pin's head, when magnified several hundred times, was seen to contain a group of seven portraits of members of the artist's family, the likenesses being admirably distinct. Another microscopic photograph, of still less size, represented a mural tablet, erected to the memory of William Sturgeon, the electrician, by his Manchester friends, in Kirkby Lonsdale church. This little tablet covered only 1-900th part of a superficial inch, and contained 680 letters, every one of which could be distinctly seen by the aid of the microscope.

VALUATION OF WORCESTER.—The Worcester *Spy* publishes the valuation, number of rateable polls, etc., of that city, for 1855. The valuation is, of real estate, $11,787,000, and of personal property, $6,263,000, total, $18,050,000, being an increase since 1854, of $950,000. The number of polls

is 5825, being a decrease of 79. The *Spy* says: "The decrease of rateable polls is to be accounted for by the two great fires which have occurred since the enumeration of 1854. The first fire, it was estimated, threw at least one thousand persons out of employment, and the other probably from one to two hundred. A large portion of those who were unmarried, together with many who had families, left the city. The establishments burnt by the last fire have not yet been rebuilt. Those first burnt have mostly been rebuilt, but are not yet filled up, as before. Aside from this drawback, there must have been a considerable increase during the year.

Bonelli's Locomotive Electric Telegraph.—The Florence (Italy) correspondent of the Newark *Daily Advertiser* furnishes the following additional particulars in regard to this wonderful discovery:

"A second successful trial of Bonelli's locomotive electric telegraph has been made on the Turin railway with the concurrence of the ministers of State and the diplomatic representatives of France and England. Two trains traversing a five-mile track exchanged communications till all were fully satisfied. The correspondence with the stations was equally satisfactory; and orders to 'stop' and to 'proceed were obeyed as by volition. Morse's apparatus reduced to the dimensions of a coat pocket, including paper, &c., was used on this occasion. The simplicity of the invention is amusing. The wires running from the little pocket machine through the bottom of the car, trail on parallel insulated iron rods, which are the mediums. Strange that the notion never occurred to the Yankee nation!

"The inventor, who is the director of the Sardinian telegraphs, has submitted to the government an inexpensive project for working them, and also for continuing the submarine line now in use between Genoa and the islands of Corsica and Sardinia, (200 miles,) by way of Malta and other intermediate points, to Constantinople and the long Black sea line, and which will also be propounded to the electricians of the thousand-leagued Atlantic.

Valuation of Springfield.—The total valuation of the real and personal property in this city is $8,409,870, which is an increase upon the valuation of last year of $647,620. Number of ratable polls, 3793—increase from 1854, 139. Springfield's portion of the State tax is $1990 50; of the county tax $9003 63—her city tax $64,995—making a total to be raised by tax on polls and on property of $78,019 13. The polls are taxed $2 20 each, making $8344 69. The tax assessed on the property valuation is $8 50 on the $1000, making $71,483 89. Total sum assessed this year, $79,828 49, which is $1779 36 over the amount to be raised. The sum assessed this year is greater thanever before, and the rate higher by $2 50 on the thousand.—*Springfield Republican, 8th.*

Photographs, Neipce's Process.—Mr. Neipce's process of obtaining positive photographs is to expose a sheet of calotype paper to the daylight for a few seconds, or until a visible discoloration or browning of its surface takes place. Then it is dipped in a solution of iodine of potassium, consisting of 500 grains to the pint of water. The visible discoloration is apparently removed by the immersion—though such is not really the case, for, if the paper were dipped into a solution of gallo-nitrate of silver, it would speedily blacken over. When the paper is removed from the iodine of potassium, it is washed in water and then dried with blotting paper. It is then placed in the camera obscura, and after five or ten minutes it is removed therefrom and washed with gallo-nitrate of silver, and warmed.

NEW BOOKS.

CORA AND THE DOCTOR, or Revelations of a Physician's Wife. Boston: John P. Jewett & Co. 407 pp.

THIS is a capital book; one of Jewett's best, and that is saying a good deal. Ther are but two things in it that are as they should not be—to wit, its title, which is quite forbidding; and second, the name of a writer who can make such a book should not be unknown. Many of its scenes are full of interest, some of which are in connection with a sick-room. The whole is pervaded by a decidedly religious current of thought, and cannot fail to do good. There are no repulsive pictures in it as might be supposed from its title.

MODERN MYSTERIES EXPLAINED AND EXPOSED. In four parts. By Rev. A. MAHAN, first President of Cleveland University. 466 pages. Boston: J. P. Jewett & Co. 1855.

Dr. MAHAN has written a very sensible book on the mysterious subject of Spiritual Manifestations, etc. The subject is looked at carefully and logically, and "the spirits" disappear before his magic wand of rational investigation. His ideas seem to accord very much with those of Mr. Rogers, in a small work noticed by us a year or two ago; and we are strongly impressed with the conviction that the truth is at least approximated by this learned divine. We commend this volume to those who wish to read on this subject.

OLIE; or, THE OLD WEST ROOM. The Weary at Work and the Weary at Rest. By L. M. M. New-York: Mason & Brothers. 1855.

OLIE is a young girl who experiences a succession of misfortunes; one hopeful prospect after another ending only in disappointment, often very severe, till at last, as usual, a happy marriage ends all her sorrows. Her life is crowded with scenes of interest and calculated to excite sympathy. The whole net-work of the story is well contrived. The moral of it is excellent. Let such books be multiplied. The more the better.

THE ELDER SISTER. By MARIAN JAMES, author of Ethel, etc. New-York: Bunce Brother. 328 pages.

A CAPITAL domestic story, the plot of which is perfectly natural, and its characters drawn with great discrimination and good taste. Without professing to teach, it is full of excellent, practical wisdom, and might profitably be read in every household.

A VOICE TO AMERICA; or, THE MODEL REPUBLIC; its glory or its fall, with a review of the Republics of South America, Mexico, and the Old World, applied to the present crisis of the United States. New-York: Edward Walker. 404 pages, 12mo.

THE title shows the object of this work, and the space it occupies demonstrates that the numerous topics it discusses are scarcely more than glanced at. The author appeals to facts in the history of ancient and modern times, which teach us our danger. Its doctrine, that would *seem* too obvious to be denied, is, that Americans must rule America. It is very certain that no others can, if they try, and every attempt of the kind, in the town hall, or legislative assembly, without exception, proves it. Nor are Americans always wise enough to rule their own neighborhoods. They do not, however, wish any help from those who do not understand our past history and have no acquaintance with our political and social institutions.

THEISM, THE WITNESS OF REASON AND NATURE TO AN ALL-WISE AND BENEFICENT CREATOR By Rev. JOHN TULLOCK, D.D. Robert Carter & Brothers: New-York.

THIS volume is the product of a mind deep and clear, and accustomed to discriminate. It is philosophic and simple; not above an ordinary intellect, and able to instruct and interest the learned. It has well earned the premium bestowed upon the talented author for the best essay on that subject.

THE HORTICULTURIST.

THIS very useful and elegant journal has fallen into new hands. Since the death of Mr. Downing, it has been ably and successfully conducted by Mr. Barry, who has shown himself eminently fitted for such service. A pressure of business engagements leads him now to resign, and he retires from his responsible post with the unqualified respect and esteem of every intelligent reader of his journal. May his last days be his best days. His place is henceforth to be occupied by John Jay Smith, Esq., of Philadelphia, already favorably known as a successful "horticulturist," and with ample means for continuing the work with ability and doing honor to the cause he espouses, and we trust he will be abundantly sustained and amply rewarded. We wish him all possible success.

[NOTE.—This notice was accidentally laid over, being prepared for a former number.]

NEW MUSIC.

NEW MUSIC BY WM. HALL & SON.

THESE gentlemen have lately issued some very beautiful things. Among them are

"How Sleep the Brave." Trio for three female voices. Composed by J. A. Fowler. A *moderato* movement, very sweet and very simple.

"Good Night and Pleasant Dreams"—Tyrolean. Words by Anson G. Chester, and composed by Wm. Vincent Wallace, not so simple as the former, but not difficult, and very beautiful.

"Lilly-Willy-Woken." New song and chorus. By Henry E. Work. Very simple, comic, and good of its kind. It speaks of sundry mishaps to Bill Vining all through an attempt to break "a sorrel colt, some two years old or more." He lost his whip, his money, and his lady-love.

"Love's Approach,"—Duett for soprano and contralto. Words by H. S. Cherley, and music by Wm. Vincent Wallace. This beautiful duett has recently been sung, with great applause, by Mesdames Parodi and Strakosch at their concerts in this city.

MUSIC IN NEW-YORK.

THE Academy of Music will soon be opened for a season of forty operatic performances, including the Prophet, the Hugenots, etc., etc., with a very strong corps of performers. Madam Lagrange is the principal soprano, and she has had no equal as a vocalist since the lamented Sontag. While her dramatic powers are of a high order, in person and manners she is also quite charming. She will be supported by Miss Hensler, and Brignoli, Morelli, and Amodio. These have a well-established reputation here. Miss Hensler is one of the most promising of her age that we have ever seen. Besides these, Castellar, from the London Covent Garden, for whom Meyerbeer wrote the part of Bertha, in The Prophet, and who has a very high European reputation, and Signorina Aldina, very highly commended; Salviani, an admirable tenor, and Caspina, a basso "of extraordinary voice," are also announced as engaged. Max Maretzek is the conductor. Such a combination of eminent artists cannot fail to attract.

THEATRICAL.—Mlle. Rachel still plays to respectable houses. The *furor*, however, passed away with the earlier performances. She has lately reduced her prices, with a corresponding increase in the attendance. There is no doubt of her ability as an actress, although there may be a difference of opinion as to her exact position in the scale of merit as an artist.

Mademoiselle Rachel has given a reading in the Tabernacle to a very good house, and with excellent success.

SACRED MUSIC.—There will be several performances of sacred music, of a very high order, in the course of the season, though the details are not yet laid out.

List of Patents Issued

FROM AUGUST 3, 1855, TO AUGUST 21, 1855.

James Melville, Roebank Works, Great Britain, and Jos. Burch, Craig Hall, Great Britain, machine for printing textile fabrics.

Samuel W. Brown, Lowell, improvement in gas regulators.

Jacob Busser, Philadelphia, improvement in railroad signals.

D. D. Badger, New-York, improvement in iron houses.

Leander W. Boynton, Worcester, improvement in machine for preparing flocks.

Leonard Bailey, Winchester, Mass., plane scraper.

John Broadbent, Oak Grove, Ky., improvement in looms.

James Connor and Thos. Newby, Richmond, Ind., improvement in machine drills.

Robert Cochran, Cincinnatti, improved method of hanging mill stones.

Dewitt C. Cummings, Fulton, N. Y., improvement in straw-cutters.

Daniel Dunlap, Concord, N. H., improved cutter-head for irregular forms.

Robt. W. Fenwich, Brooklyn, and Reinhold Boeklen, Jersey City, improvement in corn planters.

Alden Graham, Roxbury, improved wrench.

John N. Gamewell, Camden, S. C., improvement in apparatus for discharging atmospheric electricity from telegraph wires. Patented in England, Sept. 16, 1854.

A. F. Gray and J. C. Fincher, Thibodeaux, guage attachment for hand saws.

Liveras Hull, Charlestown, Mass., improvement in braiding machines.

John L. Irwin, Franklin, Ala., improved mode of securing tires upon wheels.

Peter H. Jackson, New-York, improvement in ship's winches.

William J McIntire, New-York, improvement in propelling vessels by the direct action of steam on the water.

John G. McNair, West Farms, improvement in manufacturing carpets.

D. W. Perkins, Rome, improvement in dental chairs.

Chas. A. Postly, Philadelphia, improved machine for measuring and weighing grain.

Chas. E. Parker, Boston, and Joseph Sauger, Watertown, Mass., improved mode of adjusting blinds to windows, etc.

B. E. Barkhurst, Brunswick, Me., machine for sawing lumber.

Edward Page, Worcester, improvement in molasses pitchers.

Silas G. Randall and James H. Jones, Rockton, Ill., improvement in seed planters.

Amasa Stone, Philadelphia, improvement in forming screw threads, etc., in the necks of glass bottles and similar articles.

Geo. W. Smith, Nanticoke, improvement in tanning apparatus.

Addison Spaulding, Lowell, improvement in the construction of artificial legs.

Wm. J. Temple, Princeton, Mass., improved self-adjusting tongue iron.

James M. Thompson, Holyoke, improvement in oil drippers.

Addison Capron, Attleboro', and Jos. S Dennis, Somerville, Mass., assignors to themselves and Henry M. Richards, Attleboro', aforesaid, improved machine for attaching hooks and eyes to cards.

Jno. B. Tay, North Woburn, improvement in in the bed spring of leather splitting machines.

Wm. Van Aden, Poughkeepsie, spoke machine.

Halvor Halvorson, Cambridge, assignor to Horace Barnes, Boston, improvement in the manufacture of daguerreotype cases.

Phillipe Stenger, Philadelpeia, assignor to Pascal Yearsley, of the same place, improvement in the manufacture of plate glass.

Louisch Koch, New-York, assignor to Peter B. Sweeney and Michael Lacourt, of same place, improvement in machinery for making paper pulp.

James Smith, Laurel, Md., assignor to himself and Wm. Botterill, Howard Co., Md., improvement in temples for looms.

Francis Arnold, Haddam, Ct., egg holder.

John and Evan Arthur, New Brunswick. N. J., governors for steam engines.

Joseph Leeds, Philadelphia, Pa., furnaces for heating buildings.

F. L. Bailey, Freeport, Ind., replacing cars.

Oramel C. Barnes and A. J. Barnes, Stockbridge, Vt., whiffletrees.

Andrew J. Barnhart, Schoolcraft, Mich., corn planters.

Francis Baschnagel, New-York city, compositions for treating rubber and gutta percha.

Jacob Boyers, Granville, Va., churns.

A. Brown and Abel Coffin, Jr., Sabine city, Texas, straining saws by atmospheric pressure.

D. H. Chamberlain, West Roxbury, Mass., hand press for printing.

Char es Cleveland, Ashfield, Mass., ventilating faucet.

J. J. Dutcher, New-Haven, Conn., steam boilers.

H. H. Fultz, Lexington, Miss., cotton presses.

Joseph Garratt Sen., Indianapolis, Ind., alloys for journal boxes.

J. E. Burrows, Newark, N. J., making zinc white.

S. T. Jones, New-York city, zinc white.

B. W. Gay, New London, N. H., extension vehicle.

W. N. Gesner, Fair Haven, Conn., windlasses.

E. B. Graham, Middletown, N. Y., hernial trusses.

R. J. Morrison, Richmond, Va., cutting apparatus of harvesters.

D. Noyes, Abington, Mass., forging machine.

L. E. Payne, Yazoo City, Miss., hanging window sashes.

R. Ray, Louisport, Ky., gathering cotton stalks.

S. P. Roggles, Boston, Mass., gas regulators.

F. Russell, Boston, Mass., harvesters.

S. B. Sexton, Baltimore, Md., furnaces for heating buildings.

G. A. Somerby and C. W. Fogg, Waltham, Mass., railroad car-brake.

J. Simpson, Louisville, S. C., cotton gins.

M. Tromley, Mt. Vernon, Ill., gun locks.

S. R. Wilmot, New-York city, portable steam sawing machine.

Z. C. Robbins, Washington, D. C., (assignor to A. Martin, Norwich, Conn.,) Mills for compressing and grinding grapes and other small fruits.

E. L. Seymour, New-York city, (assignor to W. O. Bourne, New-York city aforesaid,) apparatus for sifting.

C. Winegar, Union Springs, N. Y., drawing water from wells.

John C. Briggs, Concord, N. H., improvement in the application of the conical pendulum to time keepers.

C. W. Blakeslee, Northfield, Conn., improvement in candlesticks,

William Burnett, Cincinnati, improvement in sealing cans.

Almond C. Buffum, Chicago, improvement in obstetrical extractor.

Edward Campbell, Columbus, Ohio, improvement in glass journal box.

Dugald Campbell, New-York, for swimming glove

John D. Dale, Philadelphia, improved wrench.

Henry Esling, New-York, improved basin stop cock.

Wm. Fields and Solomon Gerhard, Wilmington, Del., improved pressure water-wheel.

Sylvester H. Gray, Bridgeport, Conn., improvement in pumps.

John L. Hardeman, Arrow Rock, Mo , improvement in hemp cutters.

Horace L. Hervey, Quincy, Ill., and Robert D. Osborne, Springfield, Ohio, improvement in bridges.

John and Thomas Hope, Providence, machines for engraving calico printers rollers.

Joseph Hyde, New-York, improved apparatus for vessels, to indicate their locality, when they sink, and to apply a means of raising them.

Ebenezer Jeffreys, Dorchester, Mass., improvement in railroad car seats.

Benjamin F. Lawton, M. D., Troy, for improvement in journal box alloys.

Lewis H. Lefebvre, New-Orleans, for improvement in warm bath apparatus.

John Matthews, Jr., of New-York, improvement in pressure guages.

Augustus McBurth, Elizabethtown, N. J., improvement in percussion projectiles.

Stephen P. Ruggles, Boston, hand stamp.

Albert M. Smith, Rochester, improvement in railroad car seats.

John Woodward, Wilmot Flat, N. H., improvement in horse yokes.

Alonzo. E. Young, Dorchester, Mass., assignor to himself and Mark Worthley, Boston, Mass., improved door knob.

John Swyney, assignor to himself and James Dandridge, Boston, Mass., improvement in breech-loading magazine fire-arms.

Charles Ketchum, Penn Yan, assignor to Chas. G. Judd and Andrew Oliver, of same place, machine for sawing shingles.

Daniel S. James, New Market, Va., assignor to himself, J. B. White, Dinwiddie C. H., Va., and J. W. McIntyre, Dinwiddie county, Va., improvement in corn and cob mills.

Wm. C. Demain, Boston, assignor to A. B. Ely, of the same place, machine for paging books, etc.

Albert Bingham, Boston, assignor in himself and Andrew J. Bailey, of same place, for burglar's alarm.

John Cram, Boston, assignor to himself and John S. Cram, of same place, improvement in folding chairs.

Chas. S. Bradfield, Philadelphia, improvement in harvesters.

Dexter H. Chamberlain, West Roxbury, Mass., for improvement in curtain rollers.

John J. Crooke, New-York, improvement in window shades.

L. B. Bradley, Watertown, Ct., traps for catching animals.

A. D. Brown, Columbus, Ga., cotton gin saws.

W. O. Bisbee, Camden, N. J., splitting firewood.

Thos. Barrows, Dedham, Mass., preparations of wool oil.

J. L. Cisco, Xenia, O., carriages.

F. P. Dimpfel, Philadelphia, facilitating the removal of incrustation from steam boilers.

O. C. Green, Belleville, Ill., harvester rakes.

Asahel Gilbert, Jr., Lowell, Mass., sash fasteners.

G. W. B. Gedney, New-York city, Rotary wood splitting machine.

R. W. and Danl. Davis, Yellow Springs, O., vise.

J. L. Gill, Columbus, O., plows.

Danl. H. Pequea, Lancaster, Pa., lime kilns.

Horace Holt, Winchester, Mass., hand stamp.

B. F. Joslyn, Worcester, Mass., scythe fastenings.

J. L. McPherson, New-Vienna, O., weighing scales.

E. G. Russell, Ravenna, O., regulating valve for steam engines.

F. A. Ross and Wm. H. Marshall, New-York, sewing machine cases.

David Rohan, Cincinnati, O., shutters or blinds for stores.

M. Riche, Cincinnati, O., trimming books.

B. F. Joslyn, Worcester, Mass., breech-loading fire-arms.

Jno. Thompson, Clifton, N. Y., grain and grass harvesters.

Levi Till, Sandusky, O., brick machines.

James Parsons, Dublin, Ind., wagons.

Robt. Beans, Johnsonville, Pa., changing harvesters from reapers to mowers.

S. Bowerman, Detroit, Mich., cutting standing cotton stalks.

James Emerson, Worcester, Mass., ship's windlasses.

R. H. Wait, Barkersville, N. Y., cutting irregular forms.

Henry Waterman, Williamsburgh, N. Y., reaping and mowing machines.

Albert Bingham, assignor to himself and Andrew J. Bailey, Boston, Mass., inkstands.

Nathan Thompson, Jr., Williamsburgh, N. Y., collapsible boat.

J. A. Thompson, Cayuga, N. Y , straw cutters.

Jno. Demarest, assignor to "the J. L. Mott Iron Works," of Mott Haven, N. Y., flask for moulding bath tubs.

Wm. P. Walter and Jacob Green, Philadelphia, vault lights.

RE-ISSUES.

Wm. G. Phillips, Newport, Del., method of closing and opening gates. Patented March 7, 1854.

Hugh and James Sangster, of Buffalo, improvement in lanterns. Patented June 10, 1854.

DESIGNS.

Wm. A. Rogers, Decatur, Ala., design for labels on bottles and jars.

Minnard H. Fowler and Enoch Jacobs, Cincinnati, designs for iron railings.

ADDITIONAL IMPROVEMENT.

Wm. D. Jones, Poughkeepsie, assignor to Henry Weinfield, of New-York, improvement in propellers. Patented April 17, 1855.